

THE BRICKBUILDER.

VOL. 14

FEBRUARY 1905

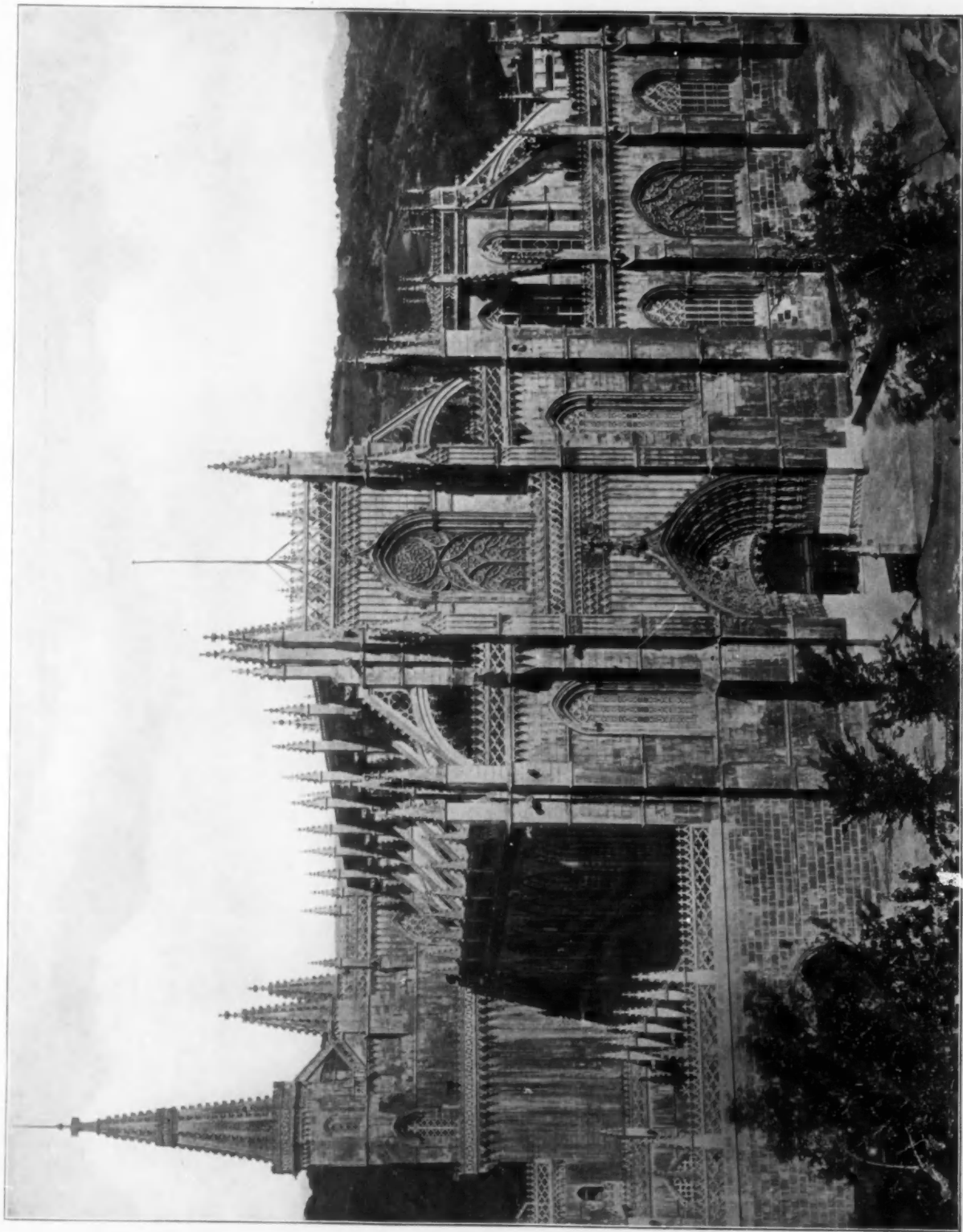
No. 2

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FROM WORK OF CRAM, GOODHUE & FERGUSON AND GEORGE S. MILLS,
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CHURCH OF NUESTRA SENHORA DA VITORIA, BATALHA, PORTUGAL.

THE BRICKBUILDER

VOL. 14 No. 2

DEVOTED TO THE INTERESTS OF
ARCHITECTURE IN MATERIALS OF CLAY

FEBRUARY 1905

THE BRICKBUILDER.

PUBLISHED MONTHLY BY

ROGERS & MANSON,

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ADVERTISING.

Advertisers are classified and arranged in the following order:—

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Architectural Faience	II	Clay Chemicals	IV
“ Terra-Cotta	II and III	Fire-proofing	IV
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Advertisements will be printed on cover pages only.

TIME IN FIREPROOF HOUSE COMPETITION EXTENDED TO MAY 15.

IN deference to the expressed wishes of many who intend entering the Competition for a Fireproof House (see programme on page 44), but who need more time for a proper study of the problem, the time limit set for drawings to be sent in is extended from April 15 to May 15.

THE PITTSBURG COURTHOUSE.

THE late H. H. Richardson was one of the very few really great architects this country has ever produced. It is therefore of the utmost importance that anything which is done in connection with the Pittsburg Courthouse, his latest and in some respects his most successful piece of work, shall be undertaken only after the most mature deliberation and after consultation with the very best talent the country affords. We cannot see any real necessity for disturbing the building at all. On three sides the courthouse is surrounded by a district which is not covered by expensive or well-built structures, and though the effect of the tower is greatly marred by the proximity of tall office buildings which completely overshadow it from one direction, that is the fault of the office buildings and not of the tower, and the remedy surely is not to destroy the courthouse because its neighbors are

unsatisfactory. The Allegheny County Bar Association has taken the initiative in a very commendable way. It has quoted the opinion of experts to show that any of the proposed changes would not accomplish the results had in view, namely, greater privacy of the courts and increased capacity, while any attempt to alter the building would hamper the work of the courts for at least three years and cost out of all reason. They show in conclusion:

- (1) That the proposed alterations of the courthouse would amount to the destruction of the architectural beauty of the present building.
- (2) That the cost of procuring the additional room in the method prescribed would be excessive and uneconomical.
- (3) That the public convenience would be better subserved by building a separate building or buildings to take care of the offices which are not essential to the transaction of the business of the courts.

THE National Sculpture Society of New York has sent out a brochure on the subject of “Art as an Educational Force and a Source of Wealth.” It is very fully illustrated with views of the most notable of the municipal art work abroad and forms an excellent adjunct to the agitation which is now being so pronounced in most of our cities towards the improvement of municipal art conditions. The art in the Congressional Library at Washington was only seven per cent of the total cost of the building. The art of the Hotel de Ville at Paris cost twelve and one-half per cent of the total cost, and the Sculpture Society makes a good recommendation that by proper enactments ten per cent of the total cost of every public building should be expended in historic art, sculpture and painting, and that of the total cost of municipal government a definite, even though small (say one-half to one per cent), appropriation be devoted to beautifying the city by suitable landscape and monumental treatment of its parks and streets.

WE have received the Year Book of the Columbia University Architectural Society, which presents in excellent form examples of the work of the architectural students in the various years. Such publications are thoroughly to be commended. A certain amount of judicious publicity is a distinct encouragement to the students and serves as a valuable record from year to year of the progress of the university. In this case Columbia certainly has cause for nothing but approval of the work of its students.

Ecclesiastical Architecture.

SOME NEEDED AMENDMENTS.

BY RIGHT REV. C. K. NELSON, BISHOP OF GEORGIA.

THERE are problems upon which the profession does not appear to have reached an agreement. First, the well-known chancel arch, revered by many because it seems to introduce properly a choir reduced from the nave. Ecclesiology suggests this reduction on the ground that they who enter here are a chosen few, the *kleroi* (clergy) and the communicants. We make the issue that this is a blunder except where there is a structural rood screen of great solidity. The acoustics, the value of the singers' dignity, the grandeur of the high altar and its surroundings are best subserved by carrying nave walls at practically the same width and the nave roof at the same height to the extreme east end of the building. The trial once fairly made will debar any future experiments, except in small buildings.

Second, the east window. Many will be found to inveigh against the innovation of omitting this legendary feature of Anglican churches. Let me ask them to think that three lancets of very dull glass in an English atmosphere, screened on the outside by climbing ivy, is a totally different thing from the American copy, large glaring windows backed by a strong eastern sun, painful to the eyes of the congregation, and utterly ruinous to the artistic effect of the sanctuary, worse in its way than a great plate-glass mirror over a fireplace,—one of the most inartistic productions that has ever been invented. We plead for the abandonment of the great east window, or at the least for a modification which places the openings as far as possible above the floor. The erection of a chapel across the east end of the building has this in its favor, that it usually destroys the possibility of one of these distracting features of American churches.

Third, the organ. Take us back to the choir in the west gallery,* set your instrument anywhere you can find place, but do not bring it under the arches of a choir aisle, the space usually left by narrowing the chancel, opposite which, for a very apposite purpose, is the vestry.

Fifty per cent of the value of the organ is lost and fifty per cent of extra cost added by the common arrangement. The contest over this question has begun in England; we hope it will appear in America. Let us give the organ a mouth out of which to speak. Let the loft be above in a transept, range the pipes on either side of the choir (overhead), but in no case shut up the instrument behind piers and arches. It will not be found impracticable to place the organ in a gallery on pillars, over the west door (not in the narthex), for the effect there will be to drive the congregation in the same direction that the choir leads (thus solving to a great extent the complaint that congregations nowadays will not sing), and a trial will show that an organ thus set is by no means *away* from the choir in the ordinary American parish church.

* There are worse things in church arrangement than a choir gallery and organ at the west end, against which the witticism of Bishop Wilmer of Alabama was directed. As he looked up to the supporting arch of this part of the church, some one asked him what he was thinking. He replied, "An inscription for that arch." "What should it be?" asked his friend. The Bishop replied with characteristic solemnity, "To the glory of the choir and in memory of God."

NOTES ON ECCLESIASTICAL ARCHITECTURE.

BY REV. DANIEL DULANY ADDISON, D.D.

THE adaptation of ecclesiastical architecture to the spirit of the time is dangerous business, because the spirit of the time is so illusive, often like the fashion of a day; and there is a past and future to be taken into account. The spirit of a generation, even if we think we have found it, may be the last thing to be considered because of its transitory character. The spirit of the centuries, the trend of the universal religious soul, is of more account. There are certain principles of reverence and aspiration which have expressed themselves among Anglo-Saxons that are safer guides than the commercial ideals of a limited epoch. If one ignores the past and makes concessions, a modified and restrained vaudeville theater, with gilt and realistic frescoes, might be the model of the modern church, or a well arranged lecture hall, or an elongated room, so that everybody may crane the neck of curiosity. But a church, the shrine of worship and inspiration, connotes to Anglo-Saxon ideas relating to humanity as a whole, and ideas of God.

As to style, therefore, that which has appealed with unflinching persistence to the Anglo-Saxon religious spirit seems the best adapted. We are governed by English ideals, in literature, government and ethics, and probably we will be so governed. Let us therefore seek the best in England for our inspiration, rather than tamper with the Classic lines of Greece or the domes of Mohammedan mosques.

The term "Gothic" is vague, but it suggests that English architecture which is congenial to the Anglo-Saxon religious spirit. A church should be lofty in the interior, giving a sense of spaciousness, mystery and uplift. It should have length, giving perspective and a feeling for distance. Pillars and columns should never be sacrificed to any idea of utility and the better view, for with the arches in stately succession they suggest the orderliness and simplicity of religious truth.

The chancel with sanctuary and altar should never be shallow and stunted in appearance. The chancel arch has been a most unfortunate tradition. This hiding in a cavelike orifice, with low roof line and contracted walls, the essential glory of the church, its choir and altar, is a strange perversion of the instinct of worship. At the very point and climax of the building there should be a widening, an elevation and deepening. So often there is a contraction and compression of this feature, into a decorated hole in the wall. Let the chancel be the height of the church, and let the width of the transept be continued up to the sanctuary, so that there may be vistas and spaces, thus giving the expansion and size necessary to a genuine idea of the ultimate use of the church; a building arranged in stages of religious progress, up the nave to the widening transept, and the chancel, deep and lofty, helpful to the soul in seeking the Eternal.

A church should never be an academic copy of anything. It must be true to the spirit of worship, not to the letter. Take some theme as a starting point, and let it grow in beauty and truth as the genius of the reverent architect indicates and as the need of the special parish church requires. Freedom of growth and of adaptation to the past and future, as well as the present needs of the

particular branch of humanity for which it is built, must be encouraged. The church should be individual, having its own marks and messages, remembering what men have done before. Let no architect think that he has done a good piece of work if he has copied an Oxford tower or worked in a bit of Canterbury. He must not make a patchwork, but a harmonious whole infused with his own and the people's reverence.

A church is not built solely for the preacher's discourse. If any preference is to be given, it should be to the total effect, on the emotional, æsthetic, historic and worshiping consciousness of the people. Instruction can never take the place of adoration and the eager presenting of one's life as a living sacrifice in the house of God. A church is not the house of man, adapted to his eccentricities and built to suit his ideas of coziness, sociability and education, but it is the house of God, built to give our best to the Creator, — an expression of Eternal elements within us.

The educated and understanding architect should never give way before the amateur clergyman or the ignorant layman. To save the city from monstrosities, the architect should firmly hold to the best traditions of his art; courageous authority is a strong antidote to ignorant caprice.

The day of great churches in America has yet to come; but it will come. The spirit which builds the magnificent buildings of commerce and finance must soon find expression for its deeper instincts in structures to the glory of God. There will be the chance to build for the fundamental and vital forces resident in humanity structures which will appeal to the modern spirit and be in consonance with the best religious impulse of the race. Whether it be the village church or the cathedral, the thought must not be that you are building for the utility and pleasure of men, but for the glory of historic Christianity and the Eternal Father revealed through Christ.

THE TEST OF CHURCH ARCHITECTURE.

BY REV. HERMAN PAGE.

THE first essential to any true understanding of church architecture is that there shall be a clear comprehension as to the true purpose of a church building. Everything depends on this. Practically there is great confusion of mind among clergy, laity and architects as to the idea which a church should express. With the happily growing belief that religion must touch life in all of its phases there seems to be much doubt in the minds of many people as to the difference between a church and a concert hall, a Young Men's Christian Association building or a clubhouse.

In an earlier article Bishop Potter has pointed out with much force the fact that the true church is a building that stands clearly for God's presence in the world. It must be a building which instantly makes one think of God when he passes it. Supremely must it be a building which makes him feel God's presence when he enters it. This is the first and last test of a good church building. True indeed it is that the amusement park belongs to God as certainly as the cemetery. Yet we do not care to have it

laid out in the same fashion. We do not expect a railroad station to look like a theater, though both buildings are desirable. We expect a hotel to differ from a private house, though both buildings are the homes of men. So the church must have its own distinctive architecture, by which it shall unmistakably declare God's presence in his world.

The true church building, then, must have a monumental character. All its lines and all its arrangements must conduce to one end, — the symbolizing of God's presence. The church, be it large or small, that fails in this respect fails entirely. It means everything to realize this truth. When this is clear, other difficulties resolve themselves, as will be apparent.

First let us notice the much discussed questions as to columns, slanting floors and a circular arrangement of seats. Why is there such discussion? Simply because men are not clear as to the purpose of a church. Many think of it primarily as a meeting place or an auditorium, the first requisite being that they shall see and hear the minister and the musicians easily. Consequently the test of every nook and corner of the building is whether one can see and hear well from it. Of course columns are an obstruction; and slanting floors and a circular arrangement of seats are a great advantage. Now it is desirable — exceedingly desirable — that in a church as many people as possible shall see and hear the minister and singers well; but there is a far more important question than this. It is, do the columns and slanting floors and circular theatrical seats help or hinder those present in realizing the presence of God? There can hardly be but one answer. Such floors and seats at once suggest the theater and the concert — not God's presence. The huge auditorium without columns and arches — with every corner visible from every seat — is entirely devoid of the variety, the light and shade, the glory and the mystery that characterize the relations of God with his children. No American who has worshiped in a church of the *auditorium* type fails to be impressed and uplifted by the variety and mystery of the great European churches, with their many columns and aisles, their transepts and their chapels. The sense of the unseen which is behind the columns, so mysterious yet so near, makes us realize as nothing else can the presence of the great Unseen One who is the source of all life and hope. A large church without columns is usually a dull and uninspiring place. On the other hand, the presence of such columns, while they may spoil a few seats for seeing and hearing, gives a variety which is indescribably valuable in a church.

Church committees recognize the value of lofty walls, towers and fine windows. It is to be hoped that they will soon recognize the far greater value of columns, so that they will be willing to spend money on enough extra floor space so that they can have columns and *also* have as many good sittings as they need.

The problem is the same when we turn to the question of the chancel. Is the building to stand for God or simply for seeing and hearing? If it is to stand for God it is essential that the chancel be large and glorious. It should be the center of all eyes and thoughts, and the altar should be its focal point. This is no mere question of ecclesiastical doctrines. It is a simple matter of archi-

ture. Shall the central idea of a church building inhere in the minister placed on high before the congregation, or shall it inhere in the structure of the building itself, to symbolize the fact that there is One present before whom minister and people shall humble themselves and whose service is for minister and people alike? If the church is to stand for the presence of God it must emphasize to the eyes of all something stronger and holier and more glorious than any man. Hence the need of an impressive chancel and a splendid altar.

A few words may be added as to the best style for church architecture in this country. We may assume that any style which uses columns and emphasizes the chancel is good. There is room for the Roman and Byzantine forms, for a restrained Renaissance and for all the varieties of Gothic in a country like ours which has a climate as varied as Europe and people almost as divergent. St. Augustine and Pasadena hardly call for the same type of architecture as Chicago and Portland.

Conditions of climate, people, building lots and environments must all be considered in the planning of the right church building. When all this has been said, however, it must be admitted that our typical civilization is busy, aspiring and ambitious. It is full of lights and shadows and is infinitely varied. The bulk of our people, moreover, live in the region of smoke and snow. There is surely no architecture which so completely expresses all these facts as does the Gothic. It is strong and aspiring. Its variety is endless. Light and shadow are of its very nature. The snow slips off its steep roofs. The smoke and grime of the great city simply enhance its ruggedness; and it seems almost like a growth of the soil in our country landscape.

When we consider also that Gothic is essentially the architecture of our Anglo-Saxon forefathers, and that the genius of our American civilization is essentially Anglo-Saxon, there are surely the strongest reasons for feeling that the true architectural style for our churches — as a matter of heritage and as a matter of true expression — is pre-eminently the Gothic architecture.

BUILDING A CHURCH.

BY REV. JOHN W. SUTER.

THE earliest name for a Christian was disciple, and the earliest name, perhaps, for Christ was Teacher. The Church which perpetuates His life and endeavors to make it real to humanity is likewise the teacher. The term *Ecclesia Docens* is more than merely an indication of part of the Church's activity. It is, rightly understood, an expression indicative of the Church's essential character and vital function.

It is possible to carry over this thought into the housing of the Church. Every church building should be an *Ecclesia Docens*. In developing this idea the following elements are especially to be emphasized:

First. The church building should teach reverence. It must be a building which in itself, as one enters its door, invites to worship. It is not merely that one is to be struck by the beauty of his surroundings, or to be impressed with the æsthetic value of any detail; it is the

total impression which must work its effect. It makes it instinctive for the man who enters a true church's door to uncover, and then to hush his voice, and finally to kneel. Moreover the people of America are coming to require this thing of the church building more and more. They are desirous of the privilege and education of going to a church that compels them to feelings of reverence and to acts of worship. The demand for a teaching church in this sense is one that cannot be escaped; the people who build churches will have to reckon with it. In a recent article in the *Outlook* the Rev. Gerald Stanley Lee puts this thing in his inimitable way. "A man," he says, "cannot feel himself moved to reverence when he is asked to drop into a back parlor, called a church, and to look at a painted picture of the Holy Ghost as a dove over the preacher's head. He does not seem to be in the presence of an infinite and masterful God. The church of the future should be one that suggests nations and empires, centuries of love and sacrifice and patience, and it shall gather the great cities like children about its feet."

Second. The church building that is true to its function must provide the proper framework for the speaking voice of the preacher. It is true that the age is feeling after a deeper feeling of reverence and expects its church building to teach it that, but it is equally true that the age is waiting for the voice of the prophet, and expects its church building to be a place where that voice can be heard. So far from its being true that preaching has had its day, it has not yet begun to realize its possibilities. For a building which presents the aspect, as one enters its door, of a theater or lecture hall, to call itself a church is monstrous. The stage and the sloping floor and the amphitheater of seats have their uses and advantages, but it is not possible to combine them in any way and to find the result a church. But it is not to be forgotten that it is equally monstrous for a building, however lofty and impressive and ecclesiastical in appearance, to call itself a church if it has no pulpit, that is, place where a man can stand and speak the message so that every listener in the church can hear it. The teaching church must surely be the place where the truth is taught; and while truth may be taught in many ways, the central and controlling method must forever be the method of human speech. It is not necessary to argue this point. The chief problem of the architect is undoubtedly this: he is to make a house which shall serve as the dwelling place of the teaching church, a place where the Christian, who is always the disciple, the learner, may find himself at home, and where he will meet the Christ, who is forever the Teacher and Master. And if the building is truly to symbolize the Church which is to worship beneath its roof, it must somehow combine in its construction these two essential teaching elements. It must by its very being teach men to worship, and just as truly by its very being invite men to listen to the spoken word of God.

Neither the "back parlor" nor the lecture hall can be a church and bring a man to his knees, but no more can a stately pile of aisles and arches that can house only a spectacle and never an "audible," and where the word from the lips of a man becomes a jumble of echoing inco-

herence. "In the church," said St. Paul, "I had rather speak five words with my understanding than ten thousand words in a tongue."

It is quite possible to speak of either of these elements in a way to belittle them or to brand them as selfish ends. The sense of worship may be faulted as an emotional sentiment, and the desire to hear a sermon may be called merely a thirst for information or for a sensation. Either one may be debased, either one may be conceivably the expression of a selfish wish for a pleasurable experience; but we know that at heart these things are essentially great, and that they are equally the demands of a human soul for the best, not merely for itself, but that a man may turn that best to the service of his fellow man and to the glory of his God.

Third. While the successful combination of the two elements spoken of above constitutes the chief problem of the architect, there is another possibility, far from unimportant, which the idea of the teaching church suggests. This possibility is the element of distinctiveness in any given church building, that is to say, the branch of the Church to which the parish belongs, the locality in which it is placed, the development of its own special history and all the elements of circumstance surrounding the given problem, ought to give the church building an individual expression which is the outcome of its own unique personality. The Christians of America have been, as a rule, totally indifferent to adequate architectural expression or to æsthetic or symbolic considerations. There have been bodies of Christians who have taken delight in exalting the significance of the Bible and its central place in the life of the Church, but as a rule they have never had any distinctive place for the book in their church buildings, at any rate no impressive symbolic emphasis upon its importance. There is a great body of Christians that believes in immersion as the true method of baptism, but in spite of this splendid opportunity for baptistries, these are practically non-existent in their churches, and Christians of this type are quite content with tanks concealed under platforms. Illustrations of this sort might be multiplied, but the same neglect of the teaching opportunity is shown when one considers local history and characteristics. History is short in America, but not so short as to deserve neglect. Speaking generally, it would seem fair to assert that an architect called upon to build a church should first of all devote considerable time to a study of the situation, meaning by situation not merely the shape and size of the lot, the possibility of local material, the requirements of the given congregation and the type of architecture which the parish claimed as its choice, but something more than that. He should familiarize himself with the history of that branch of the Church of which the given congregation is a member, with that special parish's own local history and with the general topography and history and community character of the place in which the church is to stand. He should also consider the possible symbolism which the church's name may suggest or the special sides of work or teaching with which it has been occupied. By remembrance of this sort of teaching possibility a church building may stand, not only as an example of a certain type of architecture, but may attain to distinction as the speaker in its own place of a special message.

Boston Brickwork. I.

COLONIAL ERA.

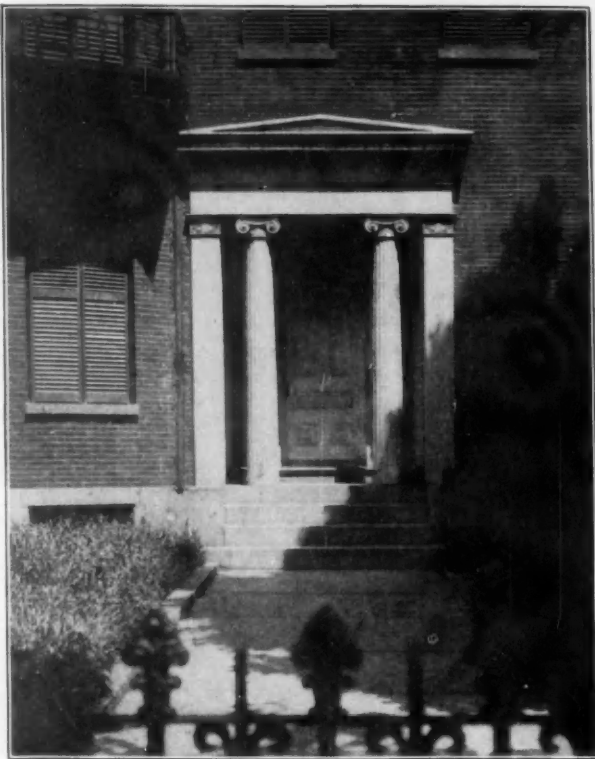
THE expression "Boston brickwork" is nearly a repetition; if the phrase "red brickwork" were used the tautology would be complete. New York implies brown stone; Chicago, light stone; and San Francisco, wood; but the red brick of our forefathers is as popular to-day in the Puritan capital as it was two centuries ago. The Bostonian reputation for reserve and caution is evidenced nowhere more than in the thousands of modest façades which line the most important as well as the minor streets. Indeed it is not an exaggeration to aver that, as a general rule, streets on which are built the homes of the wealthy and solid citizens are of a practically unbroken red, while the use of light-colored brickwork is left much to the architectural "half world" of Roxbury and South Boston. Like all rules, this has its meritorious exceptions, but we fancy it is a correct statement of the situation; and the characteristic thing about this situation is that the rougher and poorer the quality of the bricks the greater is their popularity. While sandstone and marble are hardly good enough for the New Yorker of even comparatively moderate means, the Boston millionaire insists on the usual selected red eastern water-struck brick for the façade of his mansion, sometimes, as a concession to the frivolous architect, laid "Flemish bond with black headers." Our principal avenues thus have a distinctly provincial aspect entirely unworthy of the city's importance, and this aspect is enhanced by the narrow frontages of the buildings. As some compensation for this self-consciousness in architectural expression it must in justice be said that speaking in a general way Boston architecture is characterized by a dignity, a self-control and freedom from mere flippancy which almost always impress the stranger most favorably. Moreover, the commercial structures, as investment buildings, are conceived in a somewhat more liberal spirit, in order to attract a prospective tenancy, so that the business part of the city has, aside from its narrow and winding streets, a fairly good appearance, although, owing to the height limit of one hundred and twenty-five feet, the majestic sky-scrapers of other American cities are wholly lacking.

Fifty or sixty years ago the city of Boston must have presented a much more uniform and organic appearance than at present. In 1840 to 1850 the population was something over eighty thousand. Seen from any direction the tide of houses flowed gently up the slopes of the three hills culminating in the Bulfinch dome, "resting like a mural crown upon a kingly city." The buildings were closely built, rarely over three or four stories in height, with pitched roofs, and the public buildings — city hall, market house, hospitals and churches — were planned in scholarly fashion and rose above the ordinary roofs in their proper proportions.

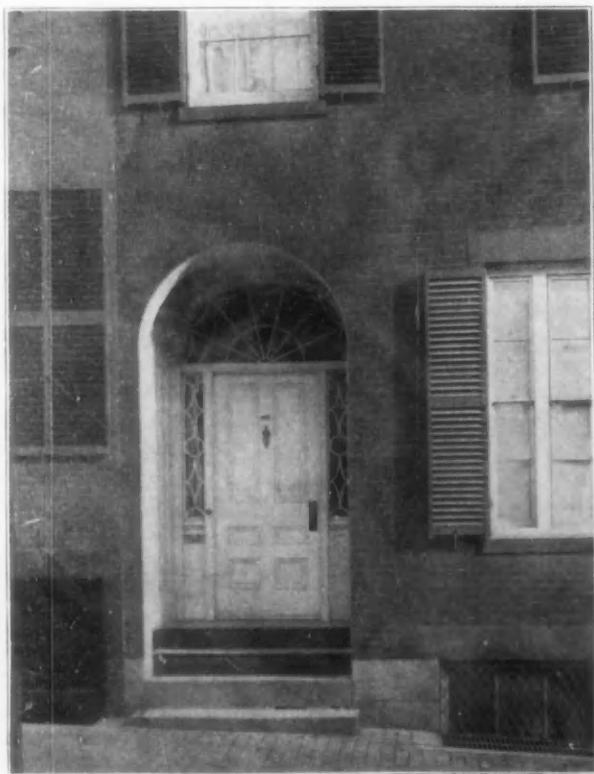
While Boston has no "sky-scrapers" within the commonly accepted meaning of the term, the domes and spires, which once gave the city a distinctive profile, are now dwarfed and obscured by commercial structures of considerable height; and instead of setting an example of purity and elegance in design, the municipal and other



1. HOUSES WITH RIDGE POLES PARALLEL TO THE STREET.



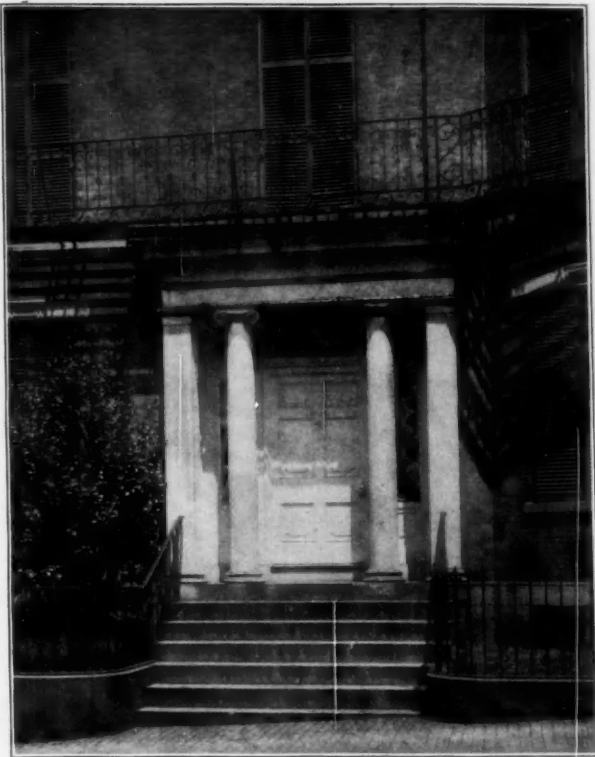
2. MOUNT VERNON STREET, THE GRECIAN PORCH.



3. A TYPICAL OLD BOSTON DOORWAY.



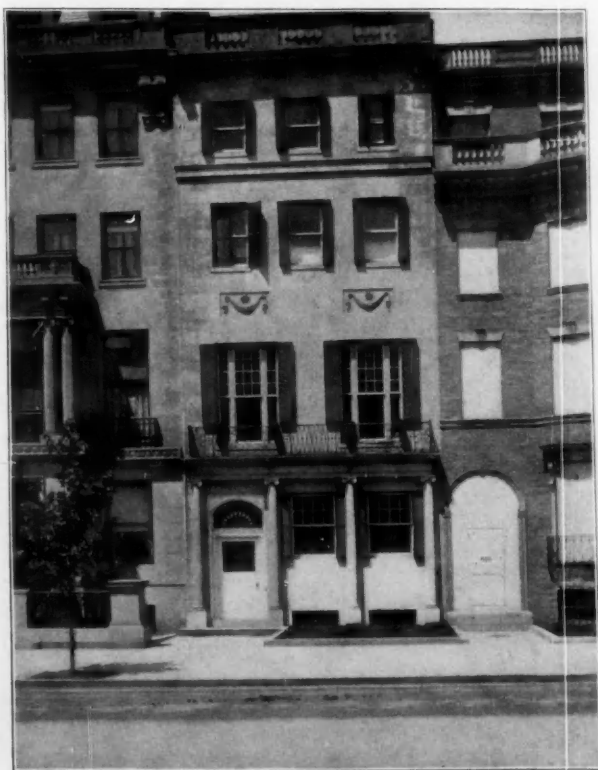
4. BEACON STREET, THE INCHES HOUSE.



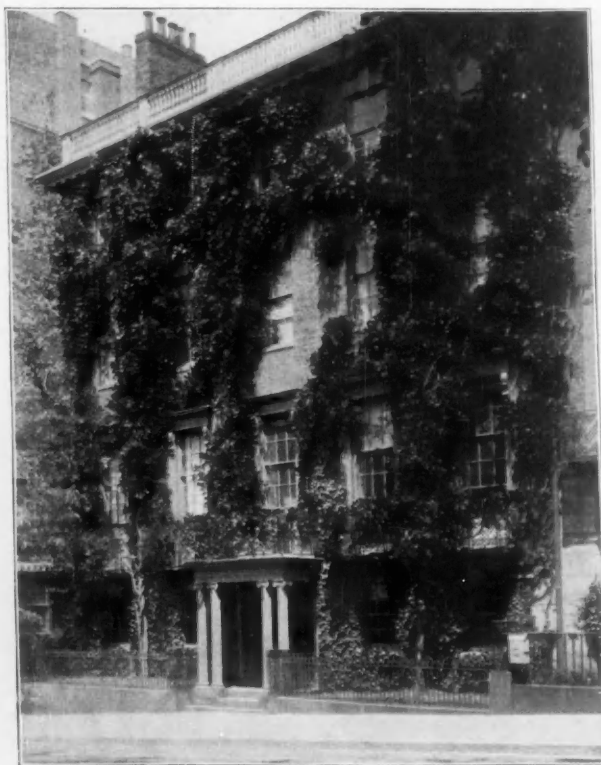
5. DOORWAY OF THE INCHES HOUSE.



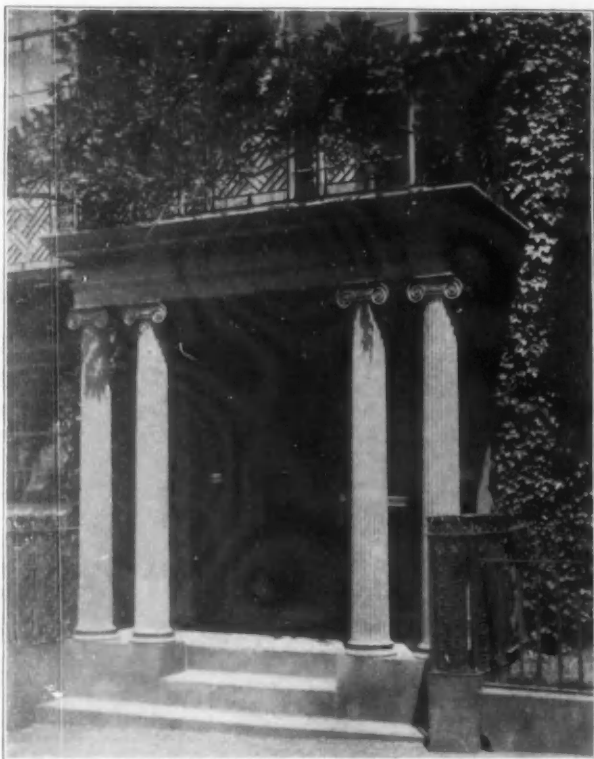
6. HOUSE WITH PORCHES OF SLENDER COLUMNS.



7. NEW HOUSE ON COMMONWEALTH AVENUE.



8. BEACON STREET, THE AUSTIN HOUSE.



9. PORCH OF THE AUSTIN HOUSE.



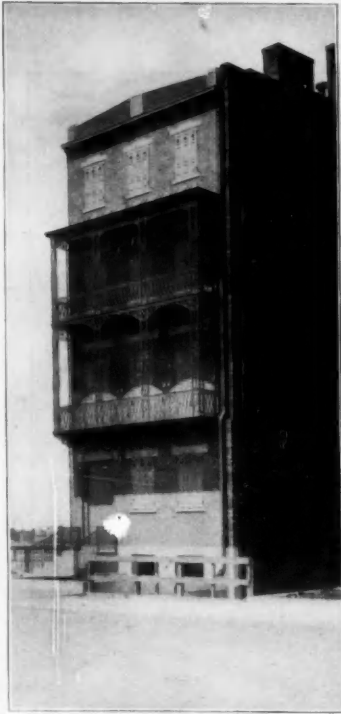
10. BEACON STREET AND HANCOCK AVENUE.



11. OLD HOUSES OPPOSITE THE COMMON.



12. HOUSES ON BEACON STREET.



13. BAY STATE ROAD.
Reappearance of Balcony Type.

public buildings are generally content to follow in the wake of private architecture.

As a result the present aspect of Boston is that of a rather ill-arranged and congested mass of buildings in which the most important buildings are generally found fronting on the narrowest streets. This mass is totally devoid of vista or symmetry, and would be devoid of any relief whatever were it not for the noble expanse of the Common and Public Garden in its very heart, which, though badly laid out, gives rise to several interesting situations along the bordering streets. Such are the stretch of Beacon Street from Charles Street to

the State House which so much resembles famous Piccadilly, or Tremont Street from Winter to Boylston which recalls Princes Street in Edinburgh, or the Parisian perspective of Arlington Street. These and a few other prospects, however, fail to redeem the hopeless confusion of the city in general, and owing to the injudicious enactment of restrictive ordinances which prevent proper development of some of the best sites there appears to be little prospect of improvement in this direction.

The characteristic Boston house of early days stood with ridge pole parallel to the street. A balcony of cast iron in Grecian pattern ran along the block at the level of the second-story window sills, and was the only attempt at ornament. In a few cases there was a Grecian porch with fluted columns of brown sandstone or white marble, but usually the door was recessed in a simple semicircular arch or plain linteled opening. On account of the stone being set "on end" most of these columns, which still remain, are in a much deteriorated condition. These houses have now mostly disappeared from what has become the business section, but hundreds of them remain on Beacon Hill and in unfrequented streets of the North and West ends. Well-preserved relics of colonial dwellings which possess any striking individuality are rather scarce at the present day, although a large number of houses from eighty to one hundred years old are still standing. The long slope of Beacon Street opposite the Common and the still steeper streets in the rear contain a number of good colonial doorways with side lights and occasionally an interesting façade. The Inches house, some time remodeled and with a story added in perfect taste by Hartwell & Richardson, is probably the best and still retains its walled garden, sheds and stabling in the rear. Lower down on Beacon Street

is a house with a porch of slender columns, a reminiscence of which has lately appeared on outer Commonwealth Avenue.

Probably of all the houses on the Beacon Street slope the old Austin house excites the greatest admiration. Its ample and dignified façade of age-mellowed brick, with its delicate and refined detail, is heavily overgrown with wisteria, whose blossoms cluster around ancient window panes, almost matching the tints of the old magnesium glass which the sun's rays, through the summers of a century, have turned to a rich purple.

If space would permit it would be interesting to present photographs of every house along the slope from Park to Charles streets. A few will suffice to illustrate the various types. The house corner of Beacon Street and Hancock Avenue is a stately mansion of the old school, say about 1840, with a graceful balcony. No. 11 shows the iron balcony reproduced on a still older house, and No. 13 is introduced to show the outcropping of the same motif, half a century later, on a new house on Bay State Road. No. 14 is from Mount Vernon Street near by, and again illustrates the familiar type.



14. MOUNT VERNON STREET.

Before passing to buildings of modern design a few views of old Boston meeting-houses are introduced. A dozen or more of these interesting structures remain and yield nothing in dignity to the ecclesiastical architecture of our own day. The motif is practically alike in all, — an auditorium consisting of a large hall with pitched roof, at the front of which is placed centrally a tower or belfry, which may or may not terminate in a spire. These buildings were usually inspired by the London work of Wren and Gibbs, and above the roof of the main church were commonly executed in wood.

The lower portions were built of the small rough brick of that period and, owing to the disproportionate expense of masons' and stonecutters' labor, were but little ornamented. Practically all of these churches were painted outside, excepting the old West Church, now standing and used as a branch of the Public Library, whose brick walls have aged to a charming tone. These remaining spires,



15. OLD SOUTH MEETING-HOUSE.



16. PARK STREET MEETING-HOUSE.



17. HANOVER STREET MEETING-HOUSE.



18. OLD NORTH CHURCH.

especially those of the Old South, Old North and Park Street churches, are of much sentimental as well as architectural importance. The historic Old South spire, though low and simple, has a graceful loggia, which gives a pleasing play of light and shade. That at Park Street is much more elaborate and is an extremely attractive piece of work.

In few cases can it be said that the tower is well joined to the church proper, the study of the architect having been mainly expended on the detail and profile of the spire itself. In the case of the Park Street spire much care in design is evidenced, not only by the rather elaborate scheme, but by such refinements as inclining the axes of the columns toward the center and by the careful detailing of the pediments and balustrades.

The meeting-house in Hanover Street has a front in two stories which, in its high-shouldered fashion, seems to recall some of the Jesuit work of Rome.



19. STATE HOUSE.

In this connection it is proper to mention the State House with its extension. The "Bulfinch front," though not free from serious architectural defects, is undeniably one of the most imposing as well as pleasing architectural compositions that the early years of the Republic produced; and if the colonnade were executed in stone or marble instead of wood it might take rank as one of the country's important buildings. As it is, its effect is much damaged by the frequent painting it receives in colors according to the varying tastes of successive commissioners. The problem placed before the architects of the vast extension was a difficult one. Its solution can hardly be regarded as satisfactory, though in fairness to them due allowance should be made for the many obstacles in their way.

I do not want art for a few, any more than education for a few, or freedom for a few. No, rather than art should live this poor, thin life among a few exceptional men, despising those beneath them for an ignorance for which they themselves are responsible, for a brutality that they will not struggle with rather than this, I would that the world should indeed sweep away all art for a while, as I said before I thought it possible she might do; rather than the wheat should rot in the miser's granary, I would that the earth had it, that it might yet have a chance to quicken in the dark.—WM. MORRIS, in "The Lesser Arts."

An Important Test of Fireproof Construction.

THE Pittsburgh Terminal Warehouse and Transfer Company is about to erect a system of forty warehouses along the Monongahela River front in Pittsburgh, under the direction of Charles Bickel of Pittsburgh as architect, and Kindel & Glaffey as engineers. These buildings will cover an area of 370 x 390 feet, with a basement and six stories. The exterior walls are to be of brick, no stone being used in the construction, even the sills being of terra-cotta. The total height of building, from the railroad track to top of parapet wall, is 90 feet. The first floor is arranged for a terminal station, with six tracks entering the building and wide receiving and distributing platforms. The building throughout is of skeleton construction, with Z bar columns resting on concrete footings and concrete piles, the floors being calculated for a live load of 350 pounds per foot with a factor of safety of 4. The construction throughout is strictly fireproof. The floors are divided into square bays. In each bay four terra-cotta arches will be carried across each bay on the diagonal, springing from the bottom flanges of the corner beams and with a rise of 18 inches and bearing at the center against eight-inch I beams, cambered to conform to the rise of the arches, bearing on the center of the sides of the bay and intersecting at the crown of the arches. By this method of construction it will be possible for one entire bay or floor to collapse in the event of some heavy object striking the arch and its failure would not influence the adjoining bays; also, the diagonal arches will transfer the loads in great part directly to the columns, thus permitting of much lighter beam construction than is usually employed. The arches will be of hollow porous terra-cotta blocks 6 inches deep, 8 inches wide, and not over 12 inches long, set with broken joints. The tops of the arches will be leveled with concrete and receive a two-inch cement finish.

The roof is constructed on the Johnson system, with a wire mesh laid over centering, imbedded in three-quarters of an inch of one to two and one-half Portland cement mortar, upon which will be laid the cement blocks covered with cement mortar and made smooth for composition roof.

In order to demonstrate the capacity of the floors, a most careful test was made at Pittsburgh by a committee, consisting of Professor Ira H. Woolson of Columbia University, W. L. Lemmon, consulting engineer for the National Board of Underwriters of New York, and W. D. McGill, chairman of the Local Underwriters' Board, and the fire marshal of Pittsburgh. As a result of these tests and of the thorough fireproofing qualities of the building the insurance rates will be the lowest ever given upon any building of this class in the country.

Professor Woolson's official report on the test is given herewith:

COLUMBIA UNIVERSITY, DEPARTMENT OF MECHANICAL
ENGINEERING, TESTING LABORATORY.

Report of a fire, water and load test made upon a hollow tile groined arch floor constructed by the National Fireproofing Company, at their plant in Pittsburgh, Pa.

Tested December 7, 1904. Test started, 11 A. M. Water applied, 3.16 P. M. Age of floor when tested, twenty-four days.

METHOD OF CONSTRUCTION.

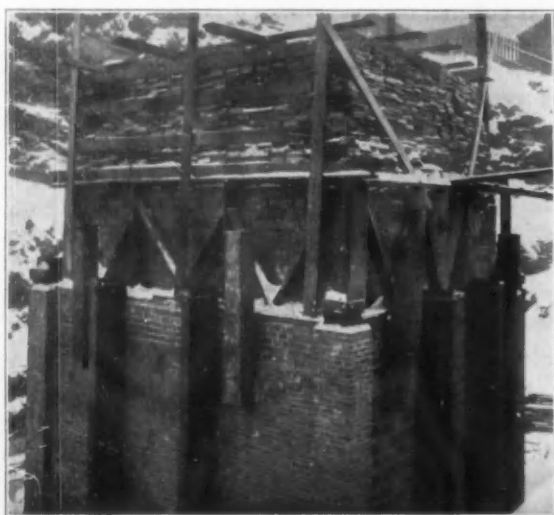
The test building was of steel frame construction 20 x 22 feet, with corner posts and I beam girders between. The longer girders were twenty-four inches deep, and the shorter ones eighteen inches deep. This



BUILDING BEFORE TEST, LOAD OF 270 POUNDS PER SQUARE FOOT.

frame was encased by a thirteen-inch brick wall on two sides and by a nine-inch combination tile and cement wall on the other two sides; the object being to study the relative merits of the two types of walls as fire barriers.

The floor to be tested constituted the roof of the test building. It was constructed by forming a groined arch of six-inch hollow tile between the girders, with a rise of seventeen inches at the crown. Above the tile was



AFTER TEST, LOAD OF 1,000 POUNDS PER SQUARE FOOT.



SHOWING METHOD OF METAL CONSTRUCTION.

concrete filling of about four inches over the crown and eighteen inches at the haunches. The arches were sprung from the corners of the rectangular floor space instead of the sides, thus throwing the greatest thrust to the corners, where the framework could best resist the load.

For purpose of reinforcement, two eight-inch beams were put in between each pair of girders at the middle and meeting in the center of the floor span. These beams were cambered to the curvature of the arch and divided the test floor into four equal parts. They were encased by the floor tile.

The construction was practically a reproduction of one unit of the floor system to be used in the new Pittsburgh Terminal Warehouse and Transfer Company warehouses, in which there are to be 800,000 square feet



INTERIOR OF TEST CHAMBER AFTER FIRE.

of floor space, all divided into spans 20 x 22 feet.

In the warehouse building the thrust on one side of a girder would be resisted by the stiffness of the girder itself, supported by the thrust on the opposite side, due to the adjoining floor span. To approximate these conditions in the test building, large I beams were placed vertically against the outside of the walls, two on each side, spaced to give reinforcement to the girders at points about one-third of the span from each corner post.

These I beams were securely anchored at the bottom and were fastened in pairs across the building just over the roof by large tie-rods with turn-buckles to bring them snugly to place. Similar tie-rods were put up in diagonally between the corner posts, the effect being to hold the main girders securely in place and prevent possible deformation. Full details of the construction are shown in the illustrations.

The floor proper of the test building was formed of an open checker-work of brick, the same as a kiln floor, and upon this the fire was built. The ceiling was fifteen feet four inches above the floor. Suitable draught openings, smoke flues and firing door were provided.

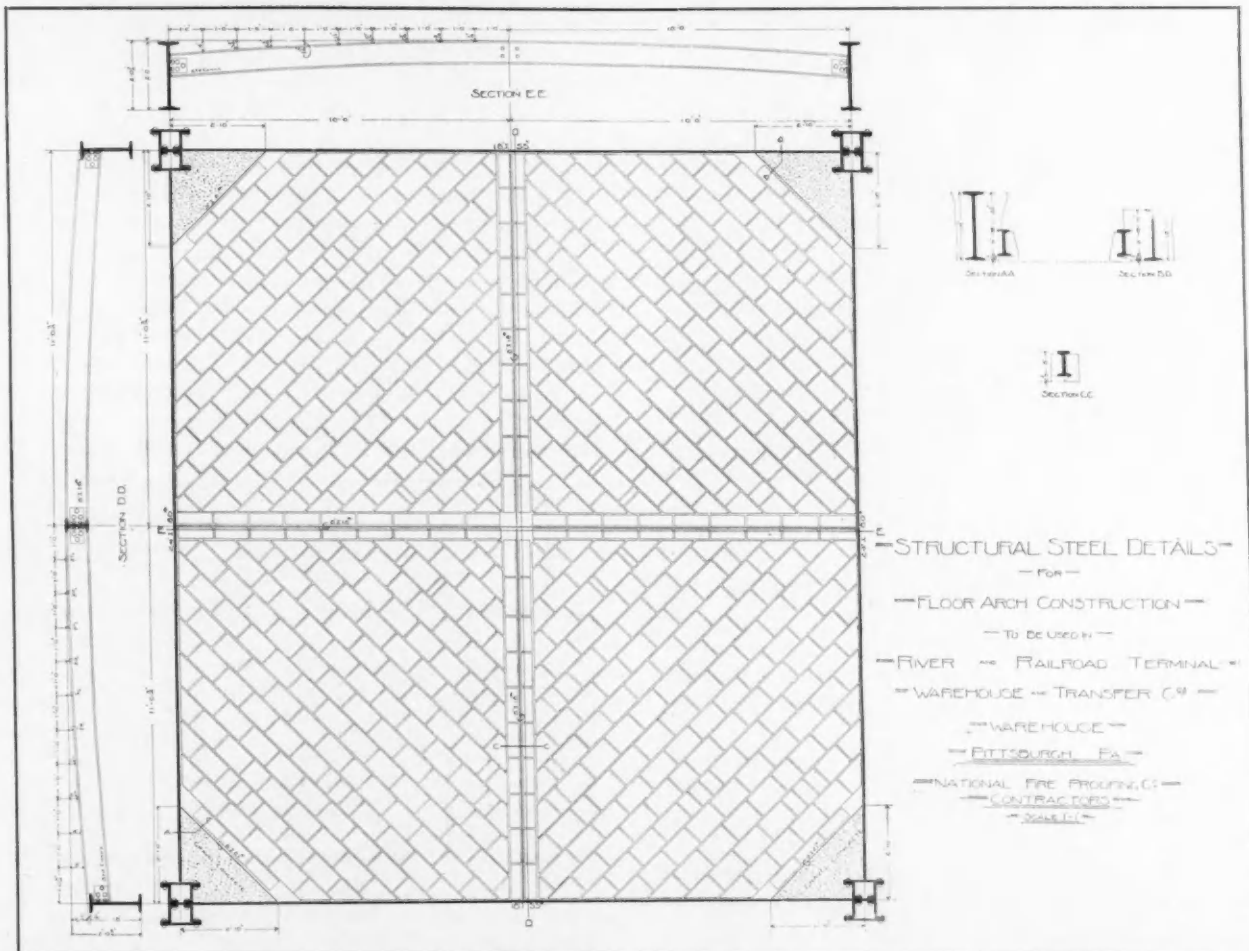
The concrete fill was mixed in the proportion of one

electric pyrometer couples suspended through the floor from above and hanging about six inches below the ceiling. One couple was near the crown of the arch, and the other in a corner, distant about three feet from each wall.

Readings were made upon each couple every three minutes. The fuel used was dry refuse wood, the frequency of firing being determined by the temperature of the test chamber. The "Log of Temperature Readings," together with plotted curve for one couple, is given herewith.*

DEFLECTIONS.

The deflections which occurred at various stages of the test were measured by a Y-level reading upon a rod



Vulcanite Portland cement, three river sand and six gravel. The tile ceiling was given a coating of one inch of cement.

PURPOSE OF THE TEST.

The purpose of the test was to determine the effect of a continuous fire below the floor for four hours at an average temperature of 1,700 degrees Fahr., the floor carrying at the same time a distributed load of 270 pounds per square foot, at the end of the four hours, the under side of the floor (or ceiling), while still red hot, to be subjected to a one and one-eighth inch stream of cold water at short range under 60 pounds' pressure for ten minutes, deflection of floor to be measured continuously during the test.

TEMPERATURES.

The temperatures of the fire were obtained by two

located upon the middle of the floor slab. The deflections were read by Mr. Bailey, an engineer detailed from the Pittsburg Testing Laboratory.

REPORT PITTSBURGH TESTING LABORATORY, LIMITED.

PITTSBURGH, PA., December 7, 1904.

Record of arch deflection under action of fire and water.

Test conducted December 7, 1904, at the National Fireproofing Company, Plant No. 1, Pittsburg, Pa.

The table gives full details of the variations in level throughout the test.

*An exact record of temperatures was taken every three minutes. After the test was fairly under way the temperatures varied from 1,000 to nearly 2,200 degrees. The average from 11.15 A. M. to 3.15 P. M. was 1,725.4 degrees for one couple, and 1,642.2 degrees for the other, showing a very even distribution of heat throughout the chamber. The complete record is omitted here for lack of space.—EDS.

TIME. A. M.	DEFLECTION. FEET.	TIME. A. M.	DEFLECTION. FEET.
11.03	.0	1.48	0.01
11.18	0.01	2.03	0.01
11.33	0.02	2.18	0.01
11.48	0.03	2.33	0.01
P. M.		2.48	0.01
12.03	0.04	3.03	0.015
12.18	0.04	3.18	0.015 quenched.
12.33	0.03	3.28	0.02
12.48	0.03	3.38	0.03
1.03	0.03	3.43	0.035
1.18	0.02	3.48	0.04
1.33	0.02		

Maximum drop of arch 0.04 feet.

WATER.

The water was applied by city firemen with a steamer detailed for the purpose from the Pittsburg Fire Department. Owing to the location of the hydrant, it was necessary to use 500 feet of three-inch hose, but the engineer reported that he maintained a pressure on his gauge varying from 100 to 120 pounds per square inch during application of the water, and this was augmented by a fall of 40 to 50 feet between the engine and the test house; so although a long line of hose was used, it is safe to say that the nozzle pressure was well above 60 pounds. The firemen estimated it at 75 to 80 pounds.

In applying the water the stream was thrown back and forth over the whole ceiling as much as possible, and not allowed to strike continuously in one place. As it was not practicable to flood the roof, as is customary in tests of this character, the stream was played on the ceiling continuously for ten minutes at full pressure.

RESULTS OF THE TEST.

Owing to the very large size of the test chamber and an insufficient flue area for the volume of fire, together with the fact that the fuel supply in the early part of the test was not suitable to feed a fire of such magnitude, it was impossible to get high temperatures during the first half of the test.

The quality of the fuel was changed during the latter part of the test, and the building having become thoroughly heated it became easy to maintain high temperatures.

Because the temperatures in the early part of the test were low, which resulted in lowering the average, it was decided to ignore the first fifteen minutes of the test, and make it up by extending the time fifteen minutes over the four hours. The temperatures during the first fifteen minutes are given in the "Temperature Log," but they were not used in calculating the averages.

The cement coating on the ceiling began to blow off about ten minutes after the fire started, and a considerable portion of it fell before the expiration of the test. The roof was covered with a load of hollow tile several feet deep, making it impossible to ascertain whether any cracks developed there or not. As the roof was in compression in all parts, and the deflections recorded were very small, it is not likely that cracks did occur there.

After application of the water it was found that the cement coating was gone, and the tile exposed where the water struck the ceiling, but the tile appeared to be in

perfect condition, with no cracks or broken parts. At least none were apparent under a hasty inspection by torch immediately after the test.

The maximum deflection recorded during the test was a trifle under one-half inch, and the average temperature at the middle of the ceiling was 1,725 degrees Fahr.

The illustrations show the building during all periods of the test, and indicate the condition of the test floor and building after the test. An illustration is also shown of a duplicate test building in process of demolition. It gives a good idea of the arrangement of the eight-inch cambered beams and the construction in general.

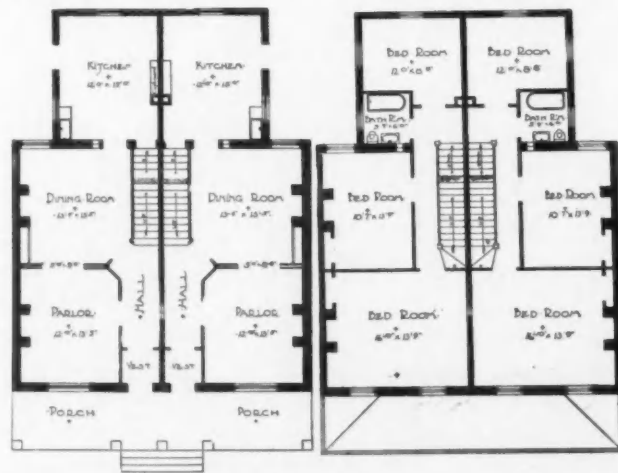
The company informed me that the floor was subsequently loaded up to 1,000 pounds per square foot with a maximum deflection of one and one-half inches.

Respectfully submitted,

(Signed) IRA H. WOOLSON.

Two Interesting Examples of Fireproof Construction.

THE construction of moderate cost dwellings and apartment houses built entirely of fireproof material, while still in the experimental state, has recently been developed in two notable instances. We illustrate in this number one of three double houses, lately built in Pittsburg for the president of the National Fireproofing Company. All of the constructive materials employed were burned clay products, and most of the material was of hollow tile, such as is commonly used for wall and floor construction. The



FLOOR PLANS.

materials have been employed with a great deal of ingenuity and effectiveness from a structural standpoint, and the houses were designed so economically that, while the cost is a trifle more than for ordinary construction, the expense of maintenance is reduced very materially, and it is not believed necessary to carry fire insurance on the structures. On the exteriors the houses present the appearance of being built in the ordinary manner, of brick. As will be seen by the illustrations, however, the outside walls consist only of a single layer of face brick backed up with common hollow brick. The foundations are formed with conduit tiles, 9 x 13 x 36 inch, forming a 13-inch wall. The partitions

are of 6-inch hollow tile, and these are constructive walls which support the floors and the roof. All of the floors are of hollow tile of the Johnson system of long span



FOUNDATION.

arches, the maximum span being about 17 feet. These floors are reinforced with steel network, but no steel beams whatever are used in the construction, and the floors are practically monolithic, the hollow tiles being laid in straight courses in cement. The porch construction is similar to the floors, and is finished with a granolithic surface. The roof is of Spanish tiles, the gutters and conductors being of copper.

The interior finish is simple but durable in character, and the houses are well equipped in plumbing, hot water, etc. The finish, of course, is of wood. The



FURRING OF HOLLOW BRICK.

upper floors are of slate. The contract price, complete, for each house was \$4,600. This is an increase over ordinary construction of only about \$500, as was shown by actual bids received; but in view of the fireproof qualities the houses are well worth the difference, and they rent so readily for \$45 a month that it is the owner's intention to construct twelve more of the same character. We do not present these as samples of architectural design, but as evidence of what can be accomplished by an intelligent use of burned clay products. They demonstrate amply what we have always claimed, that ten per cent additional cost will for simple work give a thoroughly fireproof house in place of the ordinary inflammable cellular construction. As far as relates to design, a good design costs no more in fireproof material than in ordinary cheap construction. It should be borne

in mind that in the case of these houses the manufacturer of the burned clay products is himself the investor, and they offer a most valuable illustration of what those who are most familiar with burned clay products can accomplish in this direction.

Another and somewhat more ambitious construction in the same line has been called to our attention and is illustrated herewith. The Campania Apartment Building has been erected at Akron, Ohio, from the design of Bunts & Bliss, architects, for the Akron Fireproof Construction Company, who are the owners and tile manufacturers. This is quite a good sized building, as will be seen by the illustration, and is constructed entirely, within and without, of burned clay material and almost entirely of cull tile which the Construction Company had on hand. The outside and center walls are built up partly in three thicknesses of 4 x 12 x 12 inch tile and partly of two



PARTITIONS OF HOLLOW TILE.

thicknesses of 6 x 6 x 12 inch partition tile, the outside being veneered with alternate courses of paving blocks and standard paving bricks, the different sizes being used so as to bond with the six-inch tile courses of the side walls. All these tiles are laid in Portland cement. The webs run vertically and the outside facing tiles, which are 4 x 6 x 12 inch, have smooth exterior surfaces, while the balance have the usual scratch surface of partition tiles.



THE FLOORS.

The cornices, sills, lintels and belt courses are all of tile moldings made in presses in the same manner as floor and partition tiles are made. All the partitions are of four-inch hollow tile, with a single tile five feet long

for each tread. Even the tank on the roof is constructed of tiles reinforced with steel bands and plastered on the inside with Portland cement. In actual construction all the walls and partitions were carried up simultaneously, and when a floor level was reached the flooring — which is on the Johnson system with six-inch tiles spanning 17 feet 3 inches — was laid at once over the whole area before the next story walls and partitions were started, thus affording a perfectly uniform floor surface, tying the walls and floors thoroughly together. Wooden floorings were omitted entirely. A composition of plaster and sawdust or wood pulp was floated true over the tile blocks and a wooden strip carried around the edges of the rooms for nailing carpet.



THE CAMPANIA APARTMENT, AKRON, OHIO.
Bunts & Bliss, Architects.

The exterior of the building has been treated in a very dignified manner, which agrees admirably with the character of the material and, as far as we can judge without knowing the color effect, presents a very satisfactory appearance. The building contains twenty-one suites, was completed in about nine months from the time it was started, and cost only about \$45,000, which is a very moderate price for a structure of these dimensions.

In illustrating these two examples of fireproof houses we wish to emphasize the fact that they are distinct marks of progress. We will not evolve at one bound a complete system of construction and exterior treatment in burned clay products upon which no improvements can be made. But the fact that each of these instances represents buildings which are thoroughly fireproof in all their details and at the same time are eminently successful from the investment standpoint, while offering abundant opportunity for satisfactory architectural treatment, shows conclusively that fireproof dwellings are not a fancy of a manufacturer or a theorist, and that there is no valid financial, æsthetic or constructive reason why our dwellings and hotels of even the most humble nature should not be constructed in the same manner as these buildings.

Editorial Comment and Selected Miscellany

SHOULD THE ELEMENT OF BEAUTY BE NEGLECTED IN OUR SUBWAYS?

AT the time of the construction of the Boston Subway, the first of its type in this country, all who were interested in a proper solution of the problem urged, but without avail, that the element of beauty should be



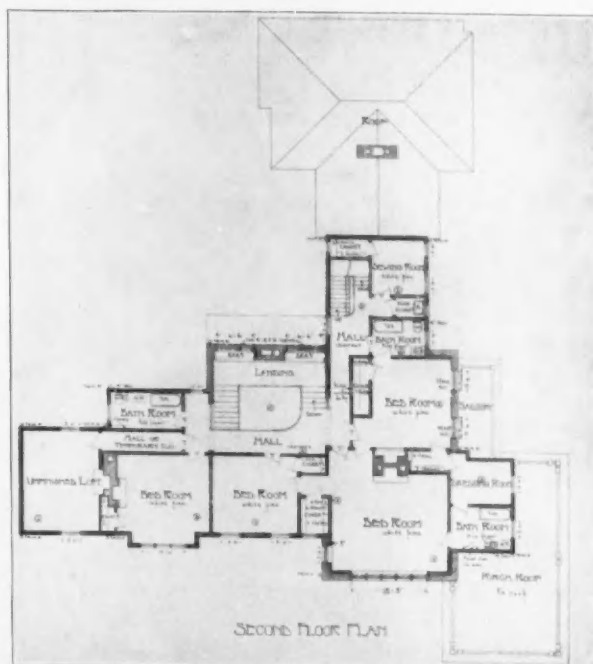
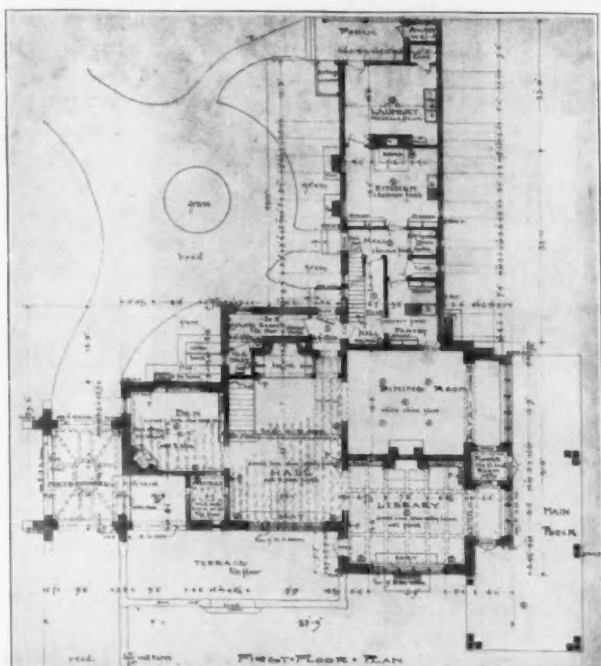
SQUASH COURT FOR HOUSE AT MT. KISCO, N. Y.
Morgan, Howard & Waid, Architects.

thoroughly considered. It has been the fortune of the New York Subway to profit by experience elsewhere and make a deliberate and quite acceptable attempt to rationally adorn the interior. We hope that all future constructions of this sort will be distinct improvements upon what has gone before, but it will not do for those who are interested in municipal



APARTMENT, NEW YORK CITY.
Neville & Bagge, Architects.

Terra-Cotta furnished by New York Architectural Terra-Cotta Co.



DINING ROOM AND LIBRARY FROM THE HALL.



THE STAIR HALL.

HOUSE FOR A. B. ROBERTS, ESQ., BALA, PA.
Baker & Dallett, Architects.

art to take this for granted. Among the earliest examples of any form of subway construction was the so-called two-penny tube in London, which was constructed without the slightest regard for anything except to push the trains through at the greatest speed at the least expense. The stations were hopelessly homely and dismally unattractive, and we have no doubt that subway construction was held back for at least ten years be-

cause of the thoroughly uninviting appearance of this first underground railroad. New York at present undoubtedly leads the world in the character of its subway, and yet they have made only a beginning in the metropolis; and if half the schemes which are proposed are carried out there will be a tremendous change in the appearance of the city and in the means of communication. But if this improvement is going to be thoroughly welcomed by the people the subway constructions must be neat, clean, wholesome, sanitary and, last but by no means least, beautiful. The initial cost of the added element of beauty ought never to be considered. The people will tire and sicken of long tubes of grimy soot and accumulated filth just as they did and have in London. For that matter, the way having been once shown so well, it will be pretty hard for a company now to undertake to omit good looks from the assets of an underground railroad. The people would be quite as prompt to demand it as they have been to order the removal of advertising features, and it is so much cheaper to build right from the start than it is to attempt a veneer of good looks on a hopeless construction that in the long run, considering that the future subways will be obliged to consider art, it is cheaper to put it in at the first.

Subway constructions offer what is practically a new field for the architect. We do not feel that the problem is by any means solved even in New York. The stations, excellent as they are, could certainly be improved upon by the very architects whose skill made them what they are. And we believe the numerous subways, which are undoubtedly to be constructed in all of our large cities within the next ten or fifteen years, will in time develop a thoroughly rational, consistent and beautiful treatment, which will be in many respects unique, and will offer a remarkable opportunity for the exercise of architectural ability. There is every indication that the adornment of our subways



STABLE OF HOUSE AT CANTON, ILL.
Robert C. Spencer, Jr., Architect.

satisfied by faience, enameled terra-cotta tile and brick, in addition to which is the element of permanent color which can really be supplied by no other known material. We look therefore to see a very successful use made of these large opportunities. Chicago at present has the most comprehensive system of subways in the country, but these subways are entirely for freight, and the passenger subway has not yet made its appearance. It is bound to come, just as it is bound to be demanded in the congested portions of every large city. When the subway was first proposed for Boston it was urged against it that to take the cars off of the street would ruin business. As a matter of fact it has been found to be just the other way, and not only has business increased where tracks have disappeared, but property has increased enormously in value when relieved from the oppression of the noisy cars. The elevated railroads in every case have depreciated property along their lines. The exact opposite result has followed the introduction of the subway, and though the latter may cost four or five times as much as the former, in the course of years it is really cheaper.

THE ENORMOUS WASTE BY FIRE.

THE waste of property by fire throughout the United States has increased far more rapidly than our knowledge of how to prevent it. The time of marked increase has coincided pretty closely with the development of our fire resistive construction, and it is a seeming anomaly that the more fireproof buildings are built in this country, the more care we take in devising the best construction, the greater is our annual fire bill. The loss now averages \$150,000,000 per year, having more than doubled since the era of steel frame building construction began in 1883. A country less wealthy than our own would have been bankrupt long ago with such a perpetual throwing away of property. And it is hard to



TECO VASES.
Made by the
Gates Potteries.



THE AGNES MEMORIAL SANATORIUM, DENVER, COLORADO.
Roofed with Ludowici Interlocking Red Spanish Tile. Gove and Walsh, Architects.

altogether explain either why such conditions exist at all, or still more why they should be allowed to persist. Merchants and manufacturers are obliged to carry fire insurance in order to protect their credit, and under the present conditions the cost of insurance is a heavy and a discouraging tax on industrial enterprises, while because of the constant outgo the earnings of insurance companies are very small. The net profits of all of the companies in the United States during the preceding ten years were swept away by the conflagrations of 1904. We will very soon be confronted with the necessity of either reducing our fire losses or insuring our buildings ourselves, for the companies cannot long continue in business under such conditions.

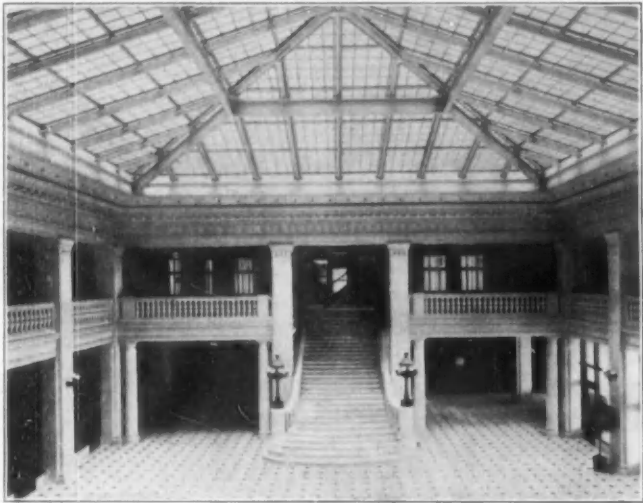
And the worst of it is that in no cities are there any signs that the conditions are improving. A year ago the wise ones looked pityingly at Baltimore and declared that for its structural sins it had been visited by such a fire, but the same results could happen in any one of twenty or thirty large cities of this country. As the wealth of our country has increased, the merchants, the shops, the warehouses have increased their stores more than correspondingly, so that when a fire is once started

the loss may run up into the millions in a few minutes. Million-dollar fires are no longer infrequent. The burning of a single block may consume the combined premium receipts of all the local fire insurance companies for several years; and such a district as exists on each side of lower Broadway demands more fire insurance capital than the world can supply.

The *New York Sun*, in discussing this, raises the very pertinent question whether a city of the size of New York would not find it economical to prohibit the further erection of combustible buildings. Unfortunately our legislators still cling to the idea that height is a measure of fire risk, and even our most stringent laws permit a man to build a fire trap and store it full of expensive goods, provided only he does not carry it more than seventy or eighty feet high. This is wrong in principle and mischievous in fact. So long as we permit inflammable areas to surround our fireproof buildings we must expect disastrous conflagrations, and until the right of the whole demands that in the business districts of a large city nothing but fireproof construction shall be allowed we will continue to throw our profits into the fire, an annual tribute to our lavish ways of building.



HOUSE FOR LOUIS BEEZER, ESQ., PITTSBURG, PA.
Beezer Brothers, Architects.



INTERIOR COURT, RAILWAY EXCHANGE BUILDING, CHICAGO, ILL.
D. H. Burnham & Co., Architects.
Finished entirely in Glazed Terra-Cotta made by
Northwestern Terra-Cotta Co.

MR. R. GUASTAVINO, to whom the architectural profession owes so many original conceptions in regard to fireproof construction, has just issued the second portion of his treatise on the "Function of Masonry in Modern Construction." The idea of the work is primarily to impart to beginners in architecture the fundamental principles of properly utilizing masonry to protect perishable materials. The author has given his name to a species of construction which has met with a great deal of favor in this country, a construction which is as old as the use of cement, which was thoroughly known to the Romans, was used with great success in Spain up to the days of the late Renaissance, but which came to this country as a revival and as the thought of one man. The Guastavino construction is for many purposes extremely well adapted. It has been used with great success in



DETAIL FOR SACRED HEART CHURCH,
BRADDOCK, PA.
Made by Atlantic Terra-Cotta Co.
John T. Comes, Architect.

the New York Subway, and in some of our public buildings it has had a most able and efficient interpretation. It is interesting to read this book in the light of all the writer has practically accomplished. Theory never is exactly in accord with practice, and the enthusiasm which kept alive the author's energies through the earlier years before his construction was

received as a success is manifest in the pages of this brochure; but with it all is a quantity of useful, practical information on the subject, which could have been acquired only with the help of the hard lessons of necessity.



DETAIL EXECUTED BY THE INDIAN-
APOLIS TERRA-COTTA CO.

THE AGNES MEMORIAL SANATORIUM.

THE Agnes Memorial Sanatorium was founded and endowed by Mr. Lawrence C. Phipps of Pittsburg and Denver in memory of his mother.

The object of the institution is the care and cure of patients afflicted with tuberculosis in its incipient forms.

The present buildings, being five in number, are arranged as follows: Administration building, medical building, two pavilions (one for women and one for men) and power plant, the latter large enough to accommodate



CARNEGIE LIBRARY, WABASH, IND.
Wing & Mahurin, Architects.
Covered with American "S" Roofing Tile.

double the present demands, and the building so arranged as to increase the present power one-third.

The buildings are erected on the highest eminence east of Denver and five miles from the business center of the city. The grounds of the sanatorium consist of one hundred and sixty acres.

The buildings are built of brick cemented on the exterior with Ideal (Colorado Portland) cement left in its natural color, a warm gray, and roofed with Ludowici red Spanish tiles.

The interiors of the medical building and pavilions are finished with as little woodwork as possible. No trim whatever is used; all corners and angles are rounded; patent plaster was used and all walls and ceilings painted. The floors are narrow quartered southern pine varnished, and finished against the walls with a concave shoe.

All lavatories are tile and marble.

All partitions between sleeping rooms are sound-proof.

The buildings are heated by steam operated by the Paul Automatic Vacuum System. Direct indirect radiators are used.

NEW BOOKS.

STRUCTURAL DESIGNERS' HANDBOOK. By W. F. Scott. New York: Engineering News Publishing Company.

This handbook, essentially a diagrammatic treatise on the subject of structural design, contains also a full tabulation of the properties of market shapes of materials.

It is presented to the architectural and engineering professions with the thought that it may be the means of shortening and possibly eliminating much of the computation and drudgery which are necessary accompaniments of structural designing.

The diagrams presented are time-saving devices, useful and suggestive to the non-expert and the student, since the diagrams illustrate graphically the relations of the various factors of proportion, span loading, etc., for the variable conditions of ordinary practice.

Throughout the work the New York Building Code has been followed, because it is everywhere recognized as conservative and safe.



PANEL OVER THE ENTRANCE TO FACTORY OF VICTOR TALKING MACHINE CO., CAMDEN, N. J.
Ballinger & Perot, Architects.
Made by Excelsior Terra-Cotta Co.

AMERICAN ESTATES AND GARDENS. By Barr Ferree. 340 pages. Cloth bound. Size, 10½ x 13½ inches. 275 illustrations. Price, \$10.00 net. New York: Munn & Co.

The building of the great homes of America has necessarily involved the development of their surrounding grounds and gardens; the work of the landscape gardener has rivaled, in its dignity and spacious beauty, that of the architect. If but little is known of our great estates, still less is known of their gardens, of which, in spite of the comparatively short period that has been given for their growth, we have some very noble instances among us.

"American Estates and Gardens" is a sumptuously illustrated volume in which the subject of the more notable great estates, houses and gardens in America receives adequate treatment. An effort has been made to select as great a variety as possible of the styles of architecture which have been introduced into this country, as being specially adapted to the peculiar conditions of American country life.

Although the exteriors of some of the houses shown in this work may be familiar to a certain number of readers, few have had the privilege of a visit to their interiors, and for that reason special attention has been given to reproductions of many of the sumptuous halls and rooms of people of wealth, and no better way can be obtained of learning how the favored few live.

IN GENERAL.

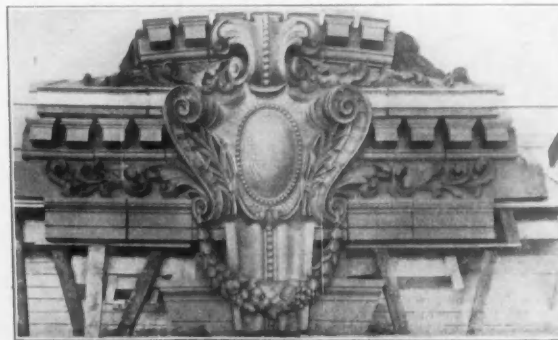
The Brooklyn Chapter of the American Institute of Architects will hold its fifth annual exhibition at the Pouch Gallery, Clinton Ave., Brooklyn, April 7 to 22. Exhibits of drawing, photographs, sculpture and objects of industrial art are desired from all interested.

Detailed information will be sent to intending exhibitors on application to W. A. Parfitt, secretary of the Exhibition Committee, 26 Court Street, Brooklyn.

Clinton M. Hill (formerly Bacon & Hill) and Thomas M. James, architects, have formed a copartnership under the firm name of Hill & James. Offices, 35 Congress Street, Boston.

Edgar O. Hunter and P. C. Rubush have formed a copartnership for the practice of architecture. Offices, Fitzgerald Building, Indianapolis, Ind.

Frederick A. Jaerschky, architect (formerly of Jersey City, N. J.), has removed to Binghamton, N. Y. Offices in the Binghamton Press Building. Catalogues and samples desired.



DETAIL EXECUTED BY GLADDING, McBEAN & CO.

Walk C. Jones and M. H. Furbringer have formed a copartnership for the practice of architecture. Offices, Scimitar Building, Memphis, Tenn.

George R. Morris and Frank E. Clifford have formed a copartnership for the practice of architecture. Offices, 657 Calvert Building, Baltimore, Md. Samples and catalogues desired.



PANEL BY GEORGE B. POST, ARCHITECT.
Perth Amboy Terra-Cotta Co., Makers.

Copeland & Dole, architects, whose offices were recently destroyed by fire, have moved to the Royal Building, Fulton and William streets, New York City. Catalogues and samples desired.

Herbert Matthews, architect, Merchants' Bank Building, Winnipeg, Manitoba, Canada, would be glad to receive manufacturers' catalogues and samples.

F. G. Brown, architect (formerly of Danville, Ill.), has removed to Los Angeles, Cal., and formed a partnership with J. W. Krause under the firm name of Krause & Brown, Stimpson Building. Catalogues and samples desired.

The new Deering Building, F. B. and L. L. Long, architects, which is to be built in Minneapolis, will have, as a finish for its exterior, glazed terra-cotta and enameled bricks. About eighty thousand cream color, satin finish, stretcher bricks will be used, in addition to twenty thousand special made bricks for corners and jambs. They will be supplied by the Tiffany Enameled Brick

Company, whose product seems to find a special favor for the fronts of buildings. It is claimed by the manufacturers that their bricks, used in combination with glazed terra-cotta, cost but little more than the best quality of pressed bricks. The Tiffany Company will also furnish their material for the new National Bank Building at Charleston, W. Va., also for a large store building at Des Moines, Iowa, C. C. Cross & Sons, architects.

WANTED — A FIRST-CLASS DRAUGHTSMAN. One competent to make perspectives. Send samples of work, state experience and salary expected. R. H. Hunt, Chattanooga, Tenn.

WANTED — A THOROUGHLY COMPETENT DRAUGHTSMAN. One experienced in church and school work. Must be able to lay out scale and detail drawings from preliminary sketches. Give age, training, references and salary expected. Ernest & Hauselmann, House Building, Pittsburg, Pa.

WANTED — A FIRST-CLASS ARCHITECTURAL DRAUGHTSMAN. Apply at once, giving full particulars, to Shand & La Faye, Columbia, S. C.

.. Competition for a Fireproof House ..

Constructed of Terra-Cotta Hollow Tile Blocks To cost \$10,000

First Prize, \$500

Second Prize, \$200

Third Prize, \$100

PROGRAMME

THE possibilities in the use of burnt clay in its various forms in our domestic architecture have only begun to be realized. That dwellings of moderate cost should be made fireproof is not only recognized as desirable, but practicable. The object of this competition is to call out designs for a house, the walls, floors and partitions of which are to be of terra-cotta hollow tile blocks.

The cost of the house, exclusive of the land, is not to exceed \$10,000. Designs calling for a more expensive house will not be considered. A detailed statement of costs must accompany each design. This statement is to be typewritten on one side only of a sheet of paper measuring 11 inches x 8 1/2 inches.

A further object of this competition is to encourage a study of the use of burnt clay products of the particular class mentioned, in an artistic as well as practical manner, and to obtain designs which would be appropriate for such materials.

In the selection of blocks for exterior walls, terra-cotta hollow tile fireproofing blocks must be employed, and not architectural terra-cotta blocks.

REQUIREMENTS: The house is supposed to be built in the suburbs of a large city, upon a corner lot, with a frontage of 100 feet towards the south and 150 feet on the side street towards the east. The grade is practically level throughout. The house is to be two stories high with an attic. This attic may be either in the pitch of the roof or a third story may be treated as an attic with a flat roof. On the first floor there is to be a reception room, a library, a dining room, a kitchen and the ordinary allowance for pantries, coat rooms, stairways, etc. The front hall may be treated as desired. In the second story there are to be two bathrooms, four chambers, a sewing room, a den, linen closet, etc. The third story should contain at least two servants' rooms, besides a store-room. Fireplaces, bay windows, seats, etc., are at the option of the designer.

The clear height is to be in first story 10 feet, second story 9 feet, third story optional with the designer. The cellar need not be specially planned, but will have a clear height of 8 feet. Arrangement of piazzas to be left with the designer.

CONSTRUCTION: While the method of construction for walls, floors and partitions is to be determined by the designer, the following suggestions are offered as being practicable and admissible:

First. Outside walls may be of hollow tile blocks 8 inches thick, lined on the interior with 4-inch furring tile, the treatment of the faces of the blocks to be appropriate for such materials.

Second. Outside walls may be of hollow tile blocks 8 inches thick, lined on the interior with 4-inch furring tile, the face of the wall to be rough cast or plastered.

Third. The outside walls may be faced with brick, with a backing of 8-inch hollow tile blocks.

Fourth. The outside wall may be built with an outer and inner wall, with an air space of 4 inches between, using in each wall a 4-inch hollow tile. The treatment of the face of such a wall, and the manner of bonding the outer and inner walls, are left to the designer. The plaster finish may be applied direct to the interior surface of such a wall.

If hollow tile blocks are used for facings, any special features in the finish or treatment of their exposed surfaces should be given in a footnote on sheet showing elevations.

For the interior partitions terra-cotta blocks are to be used.

For the floors one of the long span, terra-cotta hollow tile block systems now on the market, which are adapted up to spans of 20 feet without the use of steel beams, or a system which employs terra-cotta hollow tile blocks in connection with light steel construction.

DRAWINGS REQUIRED: On one sheet the front and a side elevation, at a scale of four feet to the inch; also plans of first and second floor, at a scale of eight feet to the inch, and on another sheet details showing clearly the scheme of construction for the exterior walls, the floors and the partitions, together with other details drawn at a scale sufficiently large to show them clearly. Graphic scales to be on all drawings.

The size of each sheet is to be exactly 24 inches by 36 inches. The sheets are not to be mounted.

All drawings are to be made in black line without wash or color. All sections shown are to be crosshatched in such manner as to clearly indicate the material, and the floor plans are to be blocked in solid.

Each set of drawings is to be signed by a *nom de plume* or device, and accompanying same is to be a sealed envelope with the *nom de plume* on the exterior and containing the true name and address of the contestant.

The drawings are to be delivered flat at the office of THE BRICKBUILDER, 85 Water Street, Boston, Mass., on or before May 15, 1905.

The designs will be judged by well-known members of the architectural profession.

In making the award the jury will take into account, first, the fitness of the design in an artistic sense to the materials employed; second, the adaptability of the design as shown by details to the practical constructive requirements of burnt clay; third, the relative excellence of the design.

Carefully made estimates giving relative costs of fireproof and ordinary wood construction for houses built from the designs awarded the three cash prizes will be obtained by the publishers of THE BRICKBUILDER, and given at the time the designs are published.

The prize drawings are to become the property of THE BRICKBUILDER, and the right is reserved to publish or exhibit any or all of the others. Those who wish their drawings returned, except the prize drawings, may have them by enclosing in the sealed envelopes containing their names ten cents in stamps.

For the design placed first in this competition there will be given a prize of \$500.00.
For the design placed second a prize of \$200.00.
For the design placed third a prize of \$100.00.

In the study of this problem, competitors are invited to consult freely with the manufacturers of burnt clay fireproofing or their agents. This competition is open to every one.



HOUSE AT CANTON, ILL.
ROBERT C. SPENCER, JR., ARCHITECT.



100



HOUSE AT CANTON, ILL.
ROBERT C. SPENCER, JR., ARCHITECT.



THE BRICKBUILDER,
FEBRUARY,
1906.





HOUSE AT MT. KISCO, N. Y.
L. HENRY MORGAN, JOHN GALEN HOWARD AND D. EVERETT WAID, ARCHITECTS.

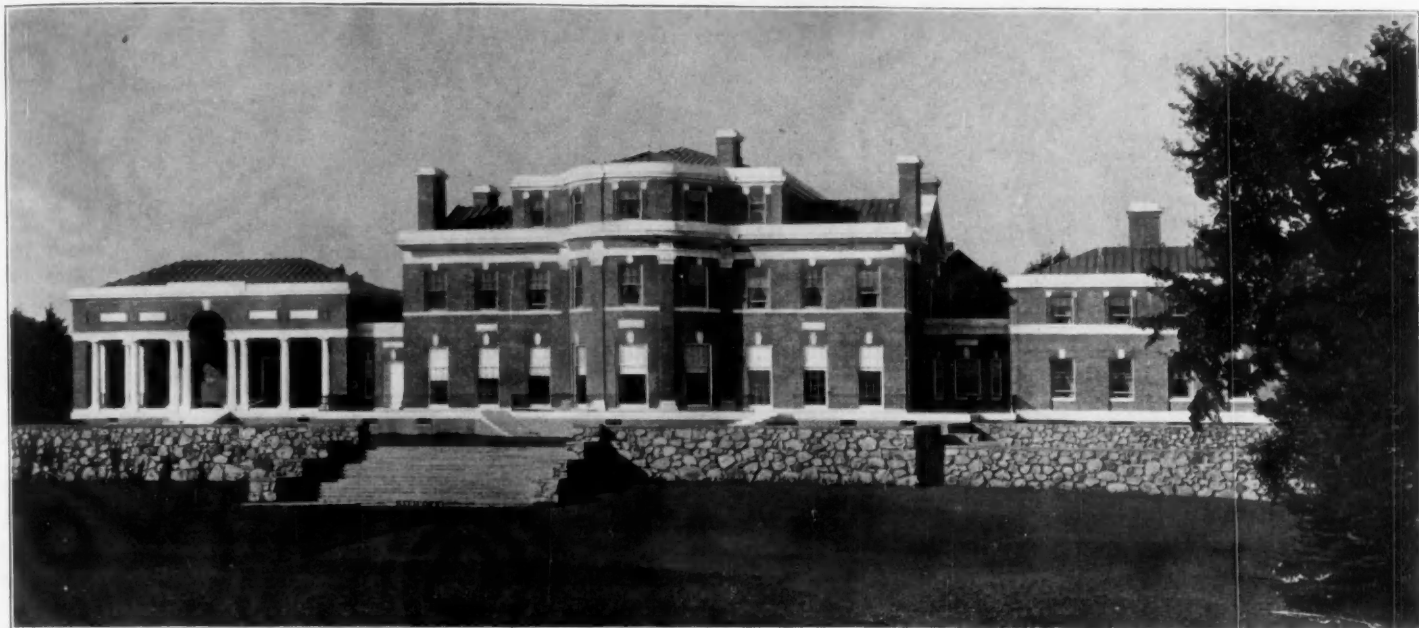
THE BRICKBUILDER,
FEBRUARY,
1906.





DETAIL OF NORTH FRONT OF HOUSE FOR T. JEFFERSON COOLIDGE, JR., ESQ. AT MANCHESTER, MASS.
MCKIM, MEAD & WHITE, ARCHITECTS.



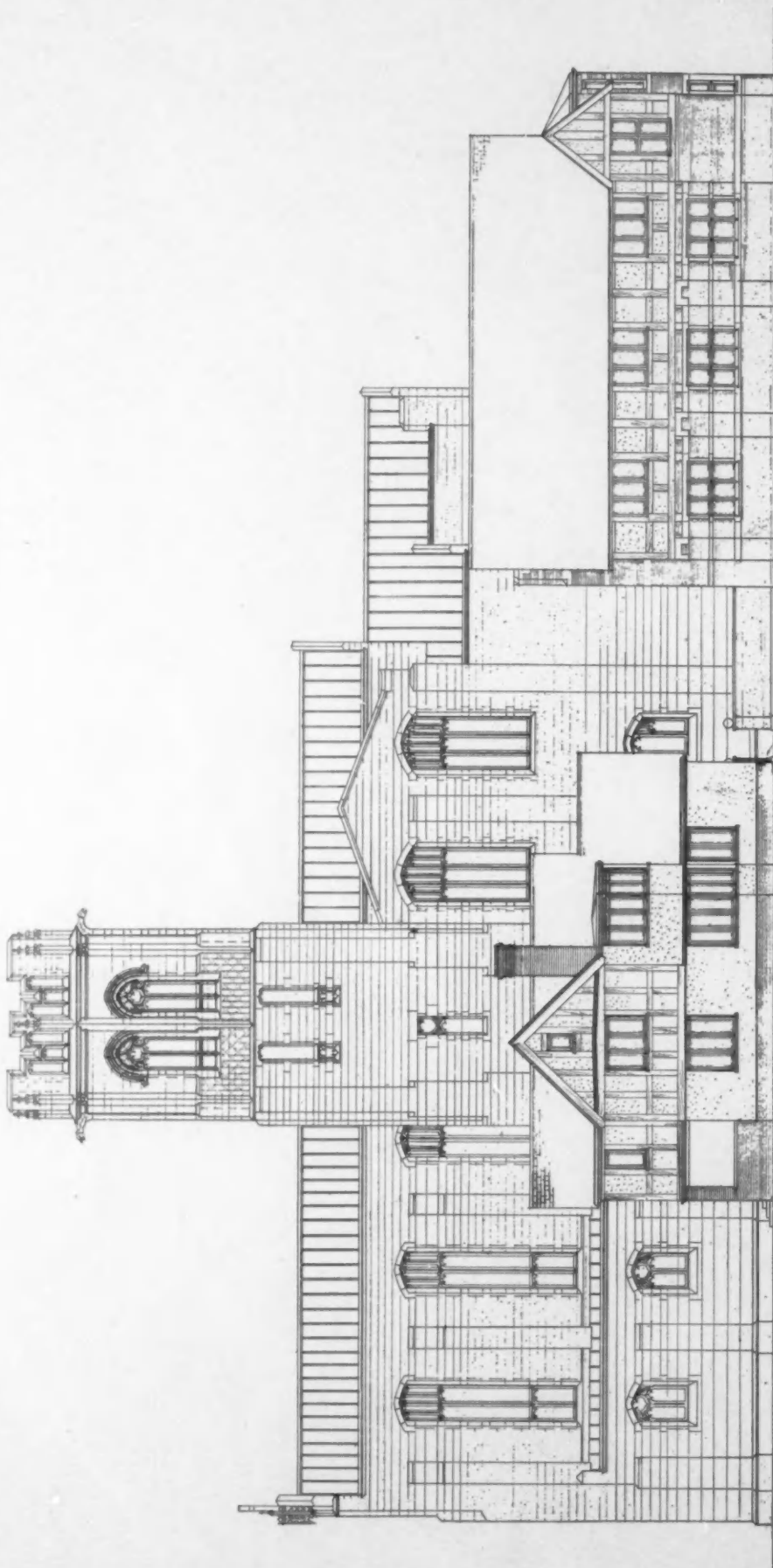


HOUSE FOR T. JEFFERSON COOLIDGE, JR., ESQ., AT MANCHESTER, MASS.
MCKIM, MEAD & WHITE, ARCHITECTS.

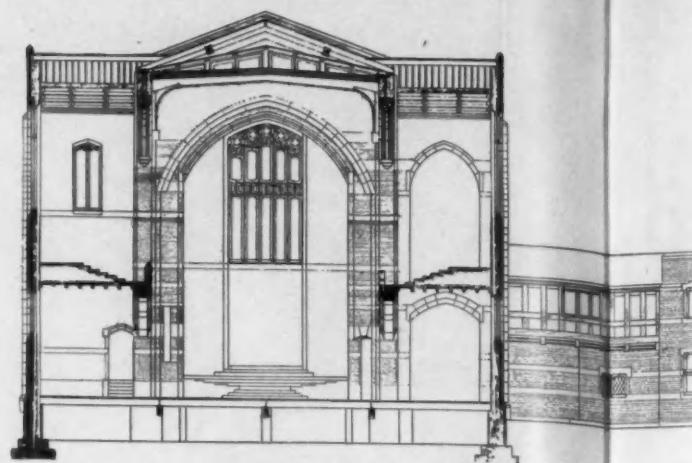




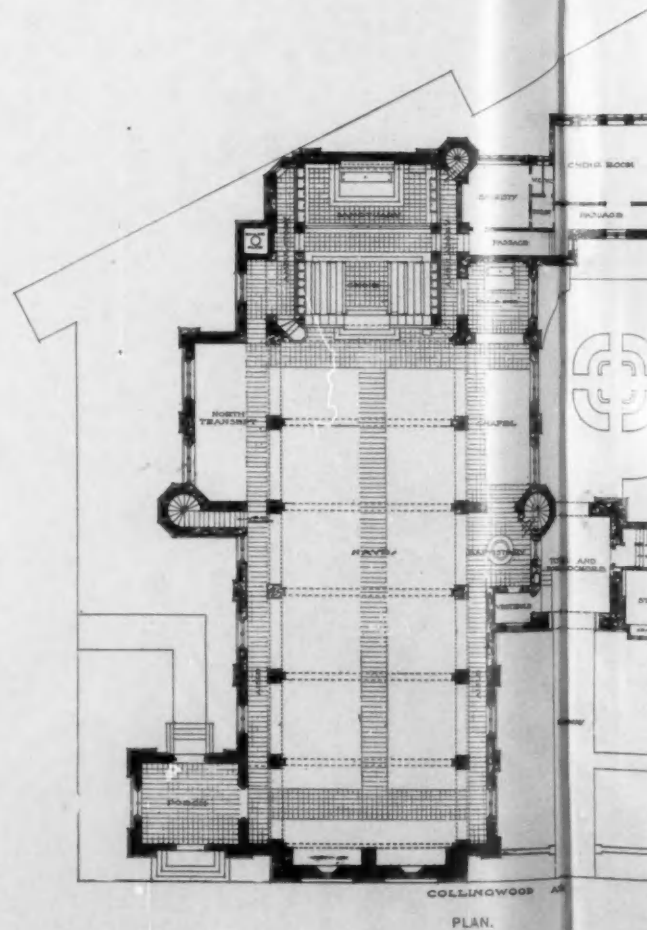
HOUSE AT MT. KISCO, N. Y.
L. HENRY MORGAN, JOHN GALEN HOWARD AND D. EVERETT WARD, ARCHITECTS.

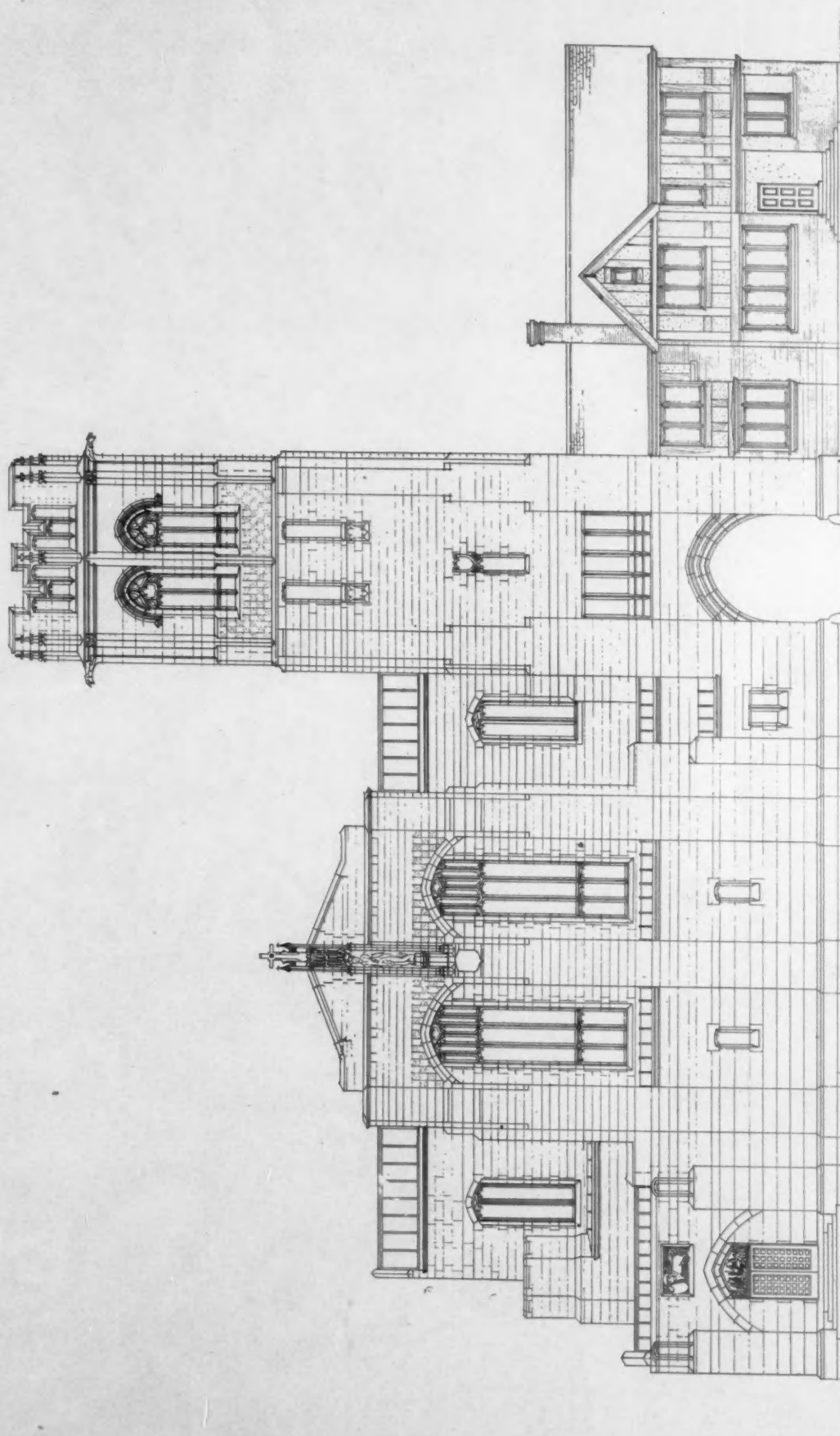
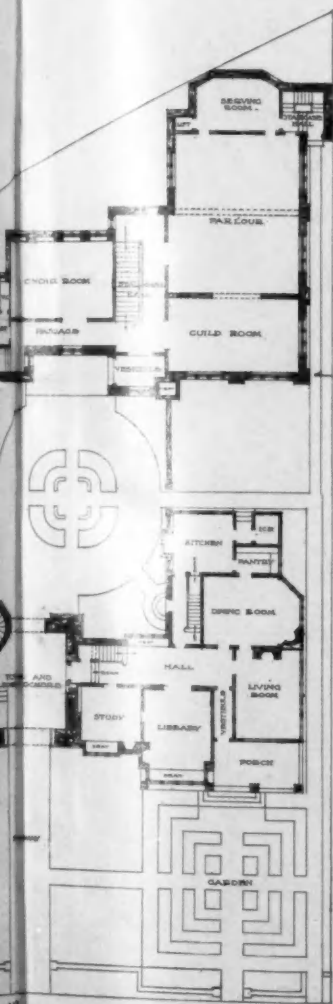
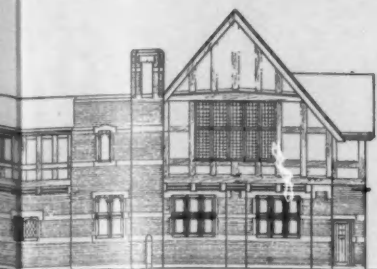


SIDE ELEVATION.



TRANSVERSE SECTION.

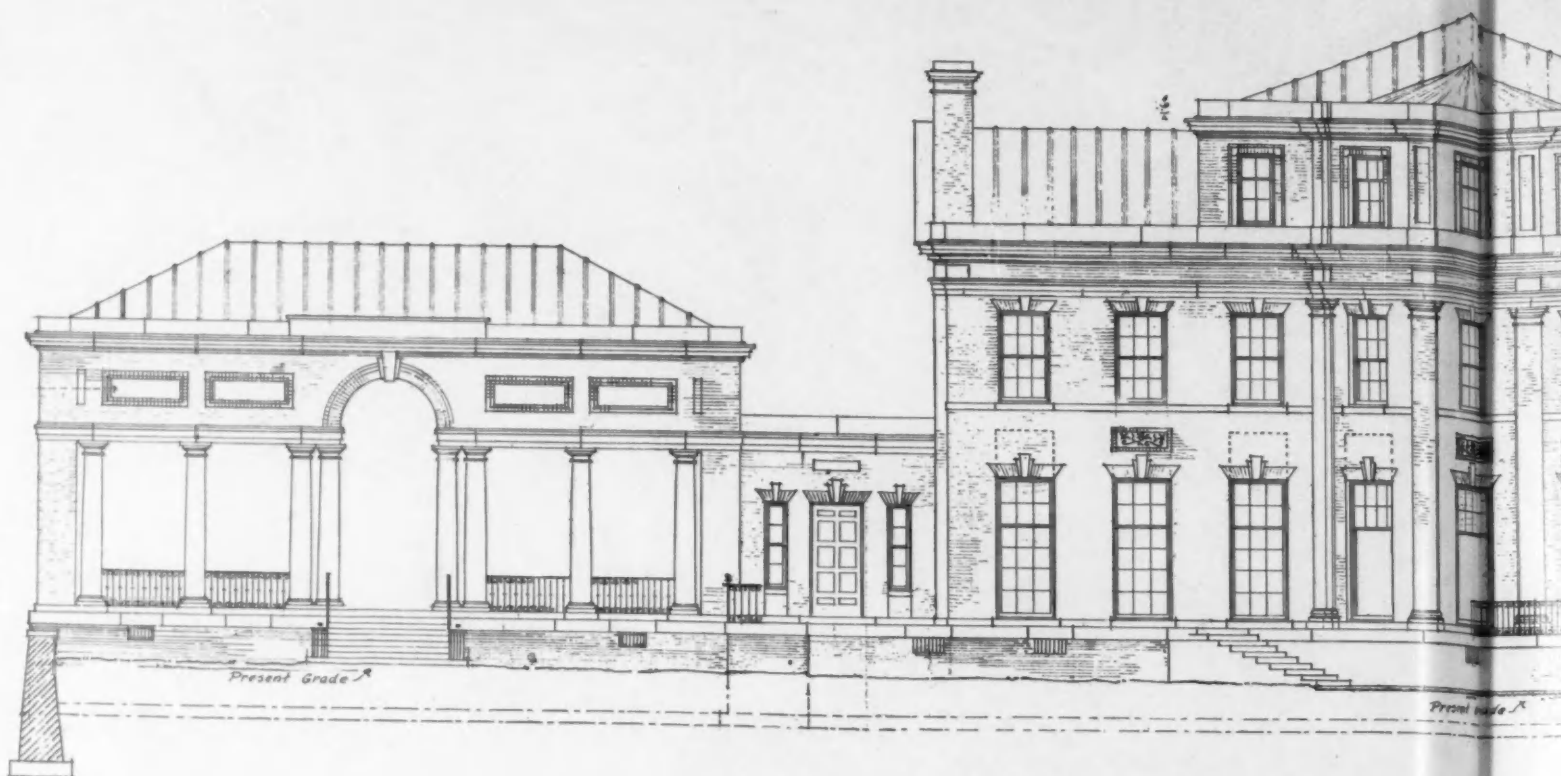




FRONT ELEVATION.

SAINT MARK'S CHURCH, TOLEDO, OHIO.

CRAM, GOODHUE & FERGUSON AND GEORGE S. MILLS, ASSOCIATE ARCHITECTS



SOUTH ELEVATION.



NORTH ELEVATION.

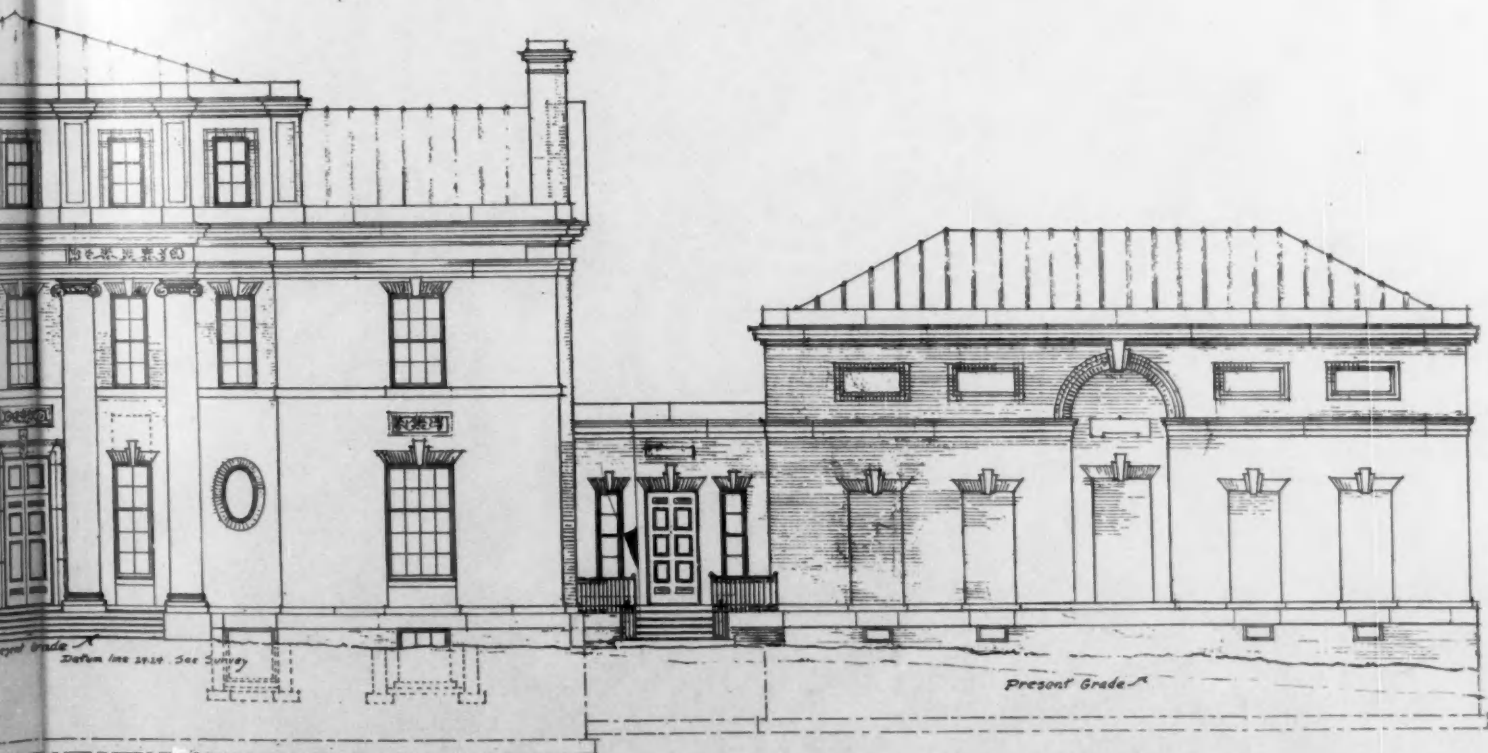
ELEVATIONS, HOUSE FOR T. JEFFERSON COOLIDGE,
MCKIM, MEAD & WHITE, ARCHT.

BUILDER.

PLATES 11 and 12.



EDITION.

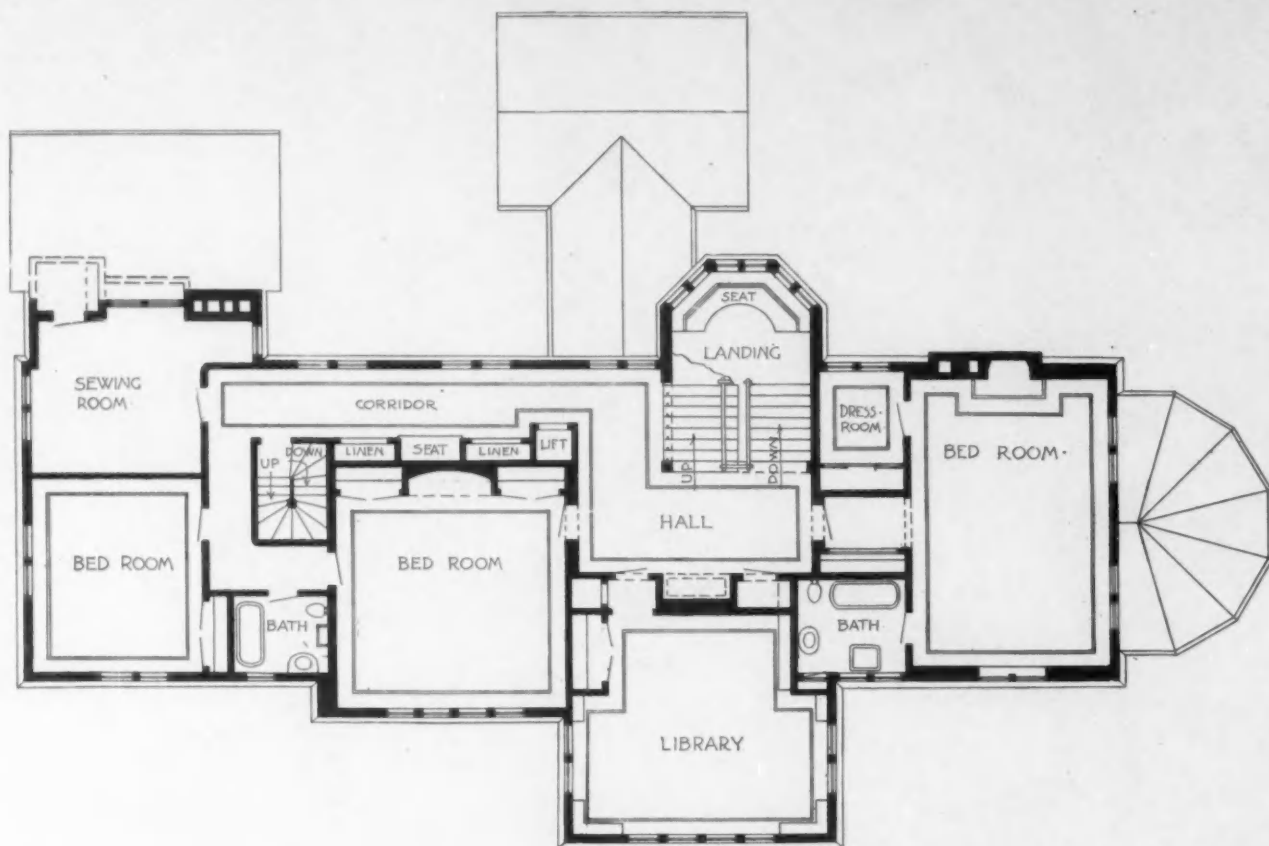


TH ELEVATION.

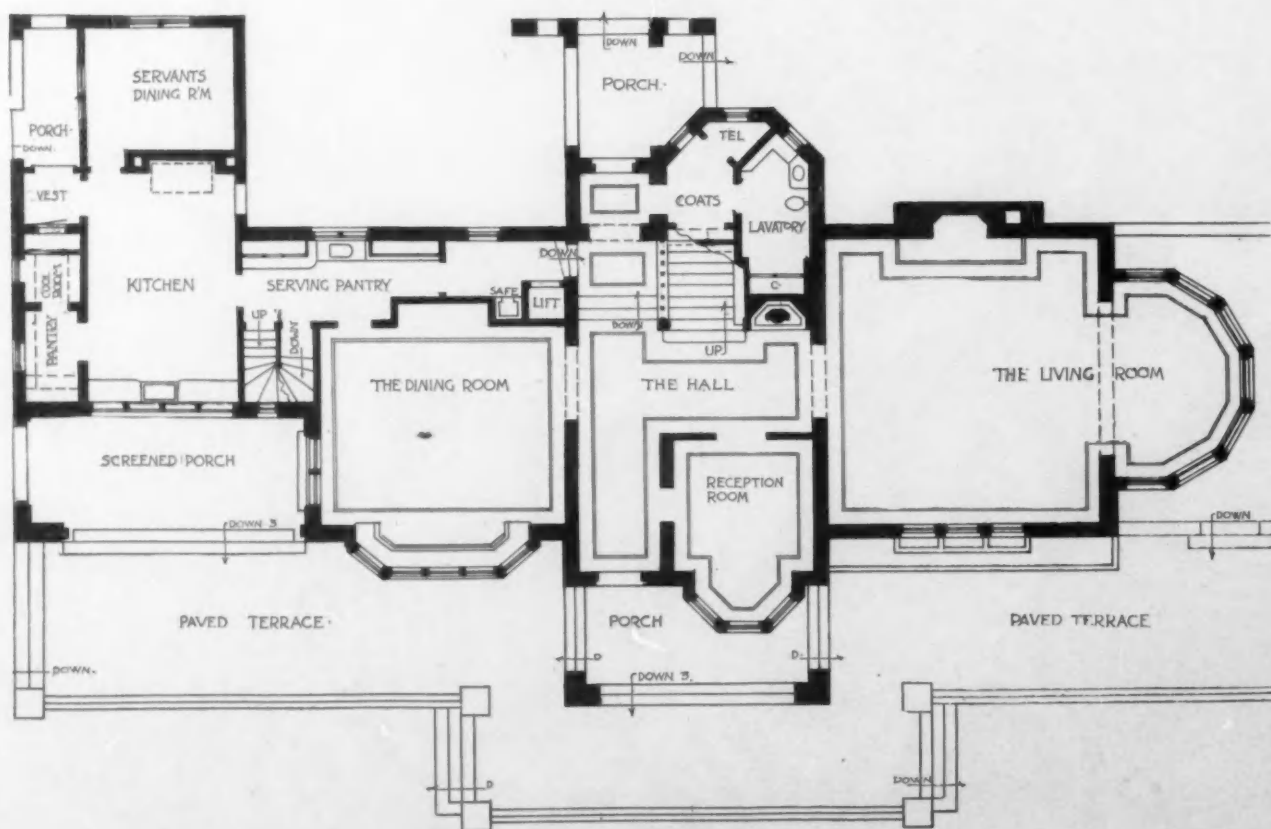
COOLIDGE, JR., ESQ., AT MANCHESTER, MASS.

& WHITE, ARCHITECTS.

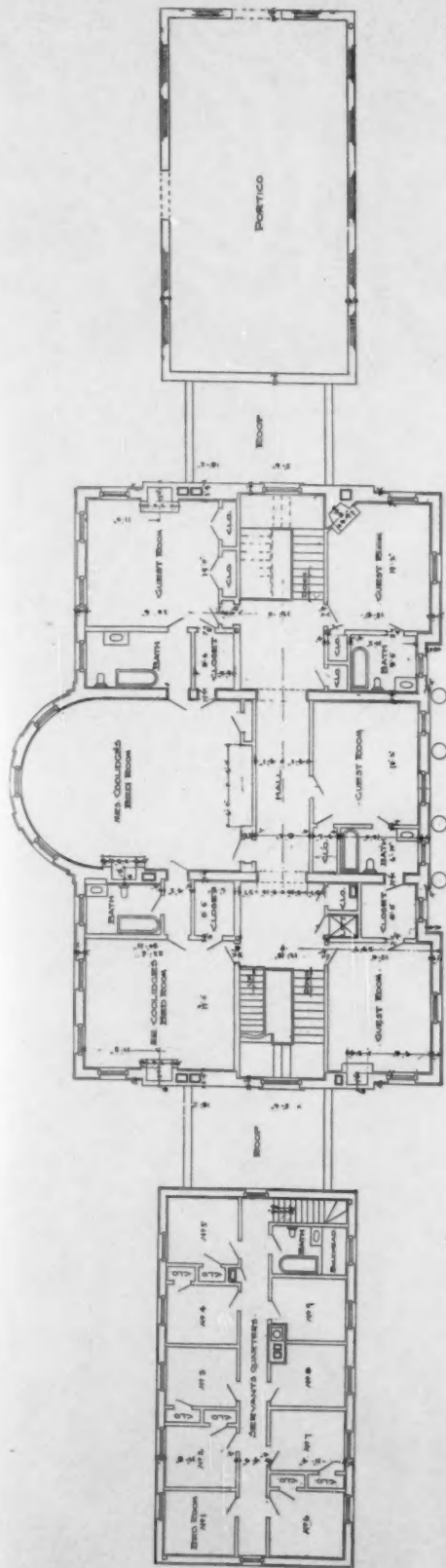
PLATE 13.



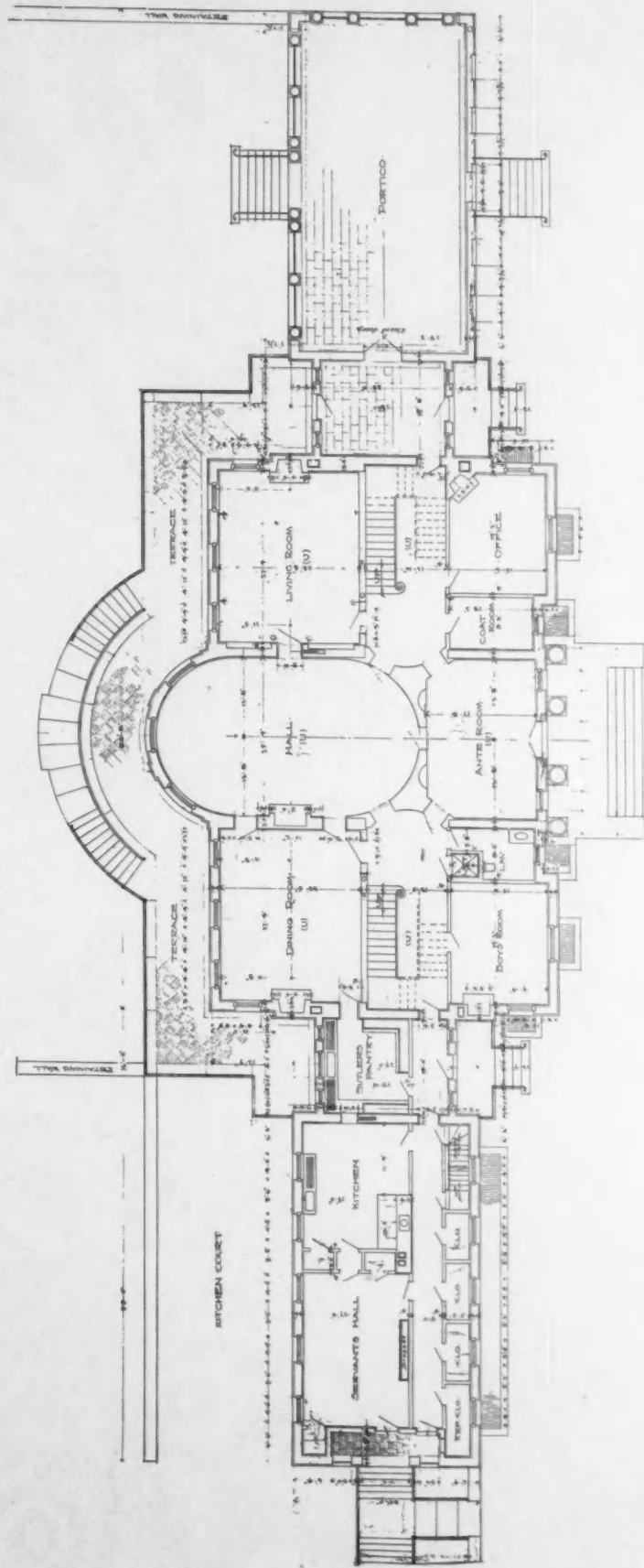
PORTE COCHERE



ROBERT C. SPENCER, JR., ARCHITECT.

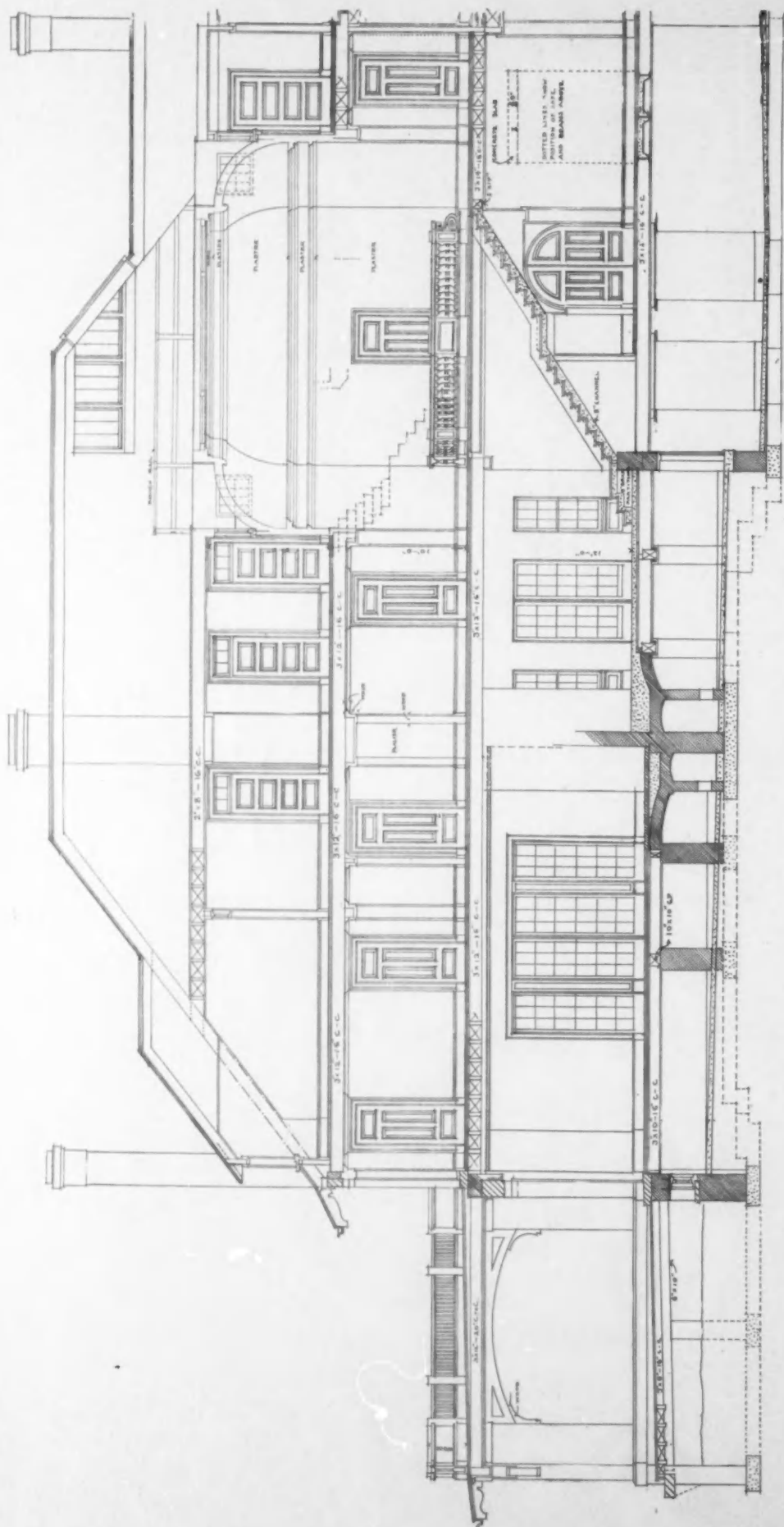


SECOND FLOOR PLAN.

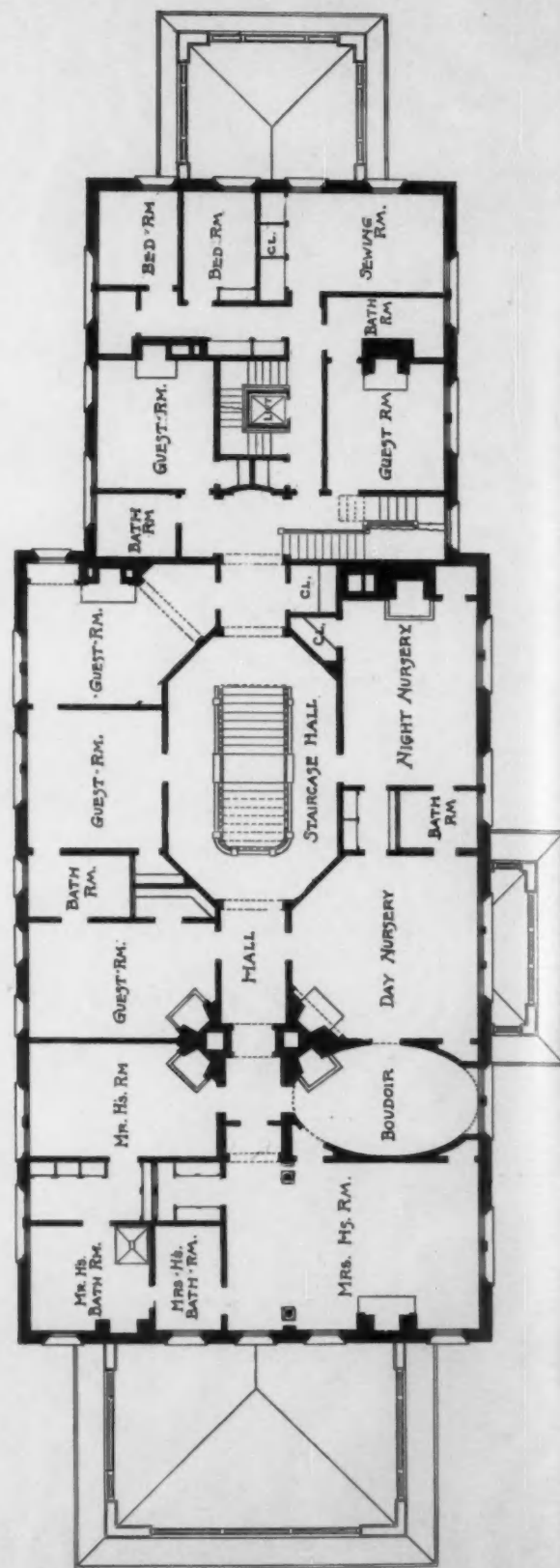


FIRST FLOOR PLAN.

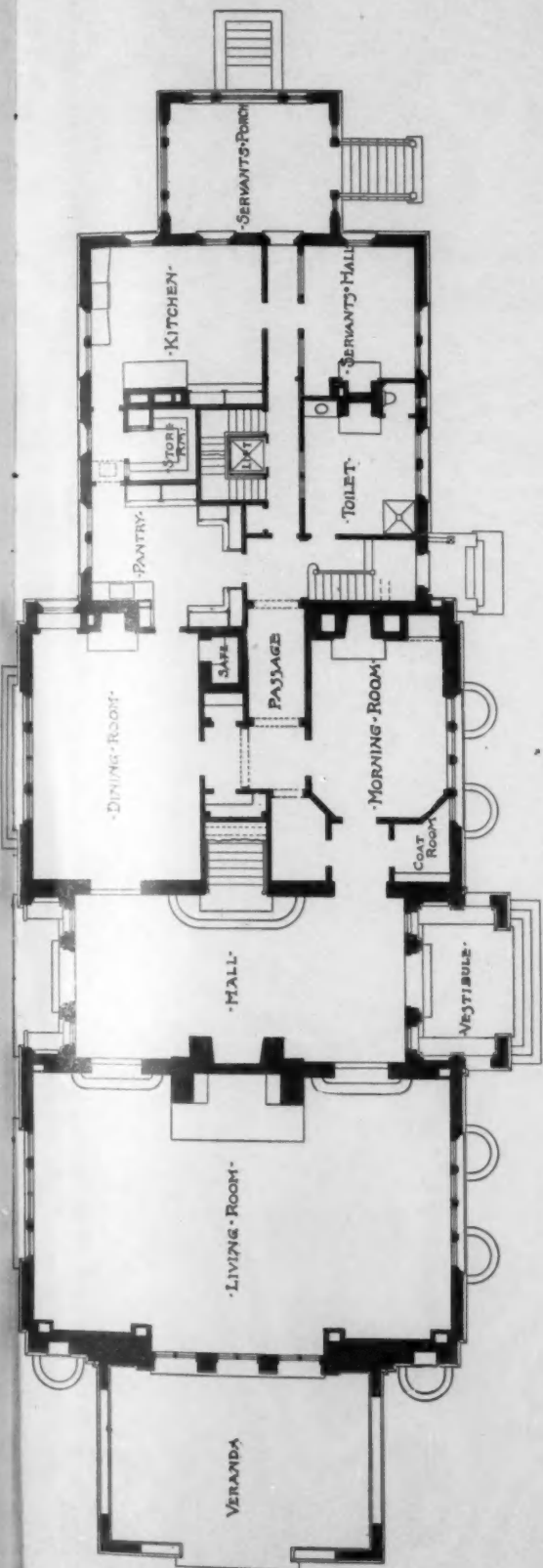
PLANS, HOUSE FOR T. JEFFERSON COOLIDGE, JR., ESQ., AT MANCHESTER, MASS.
MCKIM, MEAD & WHITE, ARCHITECTS.



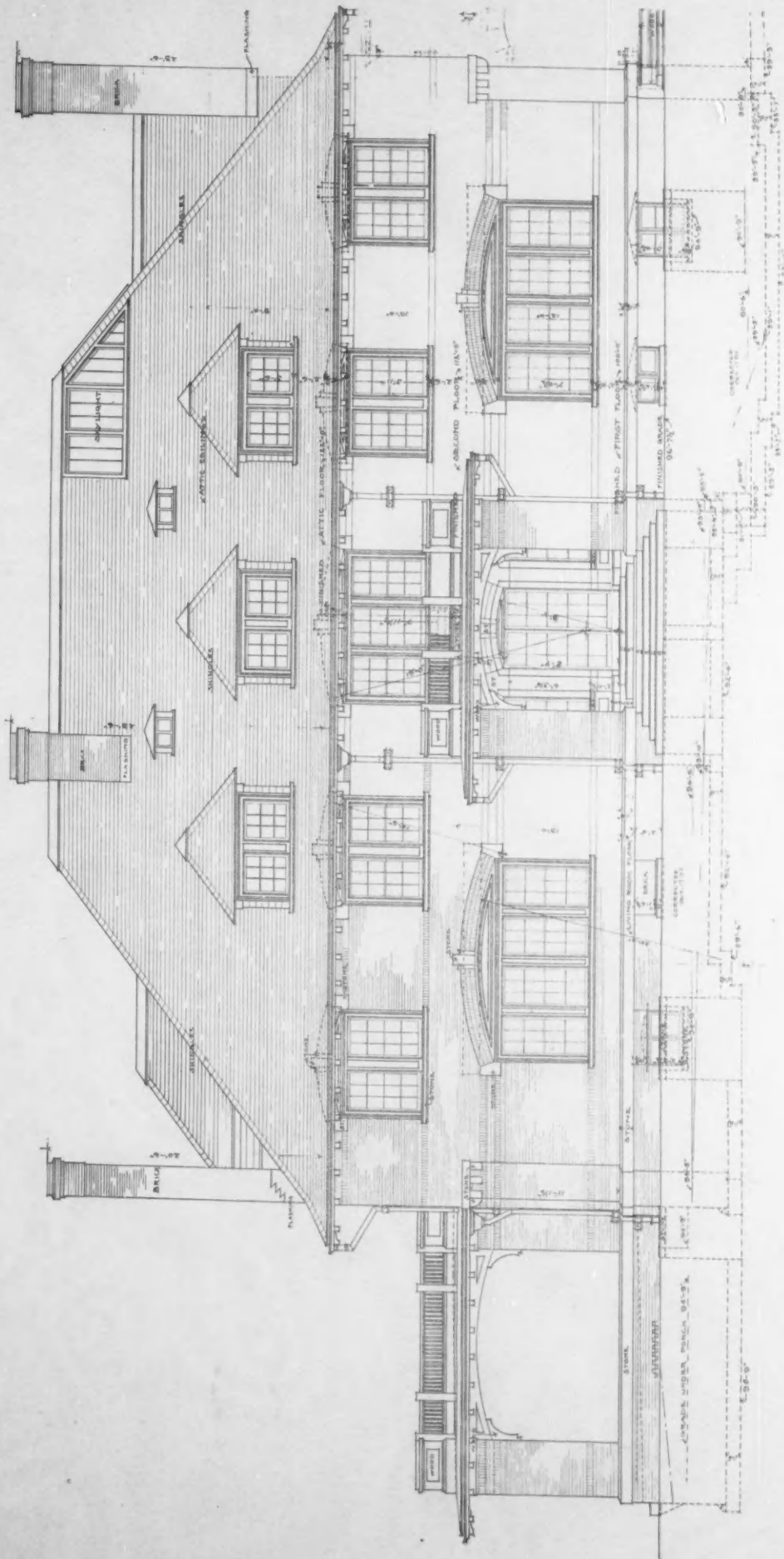
SECTION.



SECOND FLOOR PLAN.



FIRST FLOOR PLAN.



FRONT ELEVATION.

HOUSE AT MT. KISCO, N. Y.

L. HENRY MORGAN, JOHN GALEN HOWARD AND D. EVERETT WAID, ARCHITECTS.